

No. 5.— *The Ants of the Fiji Islands.*

By W. M. MANN.

THE ants listed and described in the present paper were collected by the writer during 1915-1916, when about ten months were spent in the Fijis as Sheldon Travelling Fellow of Harvard University.

ITINERARY.

The Lau Archipelago was first visited. At Loma Loma on Vanua Mbalavu I found a small cutter, the LOTU WESELE, belonging to the Wesleyan Mission, about to start for Ono i Lau at the southern extremity of the group. Permission to travel on her was given me by Rev. A. W. Amos at Lakeba and this enabled me to make a general, though hurried, survey of fifteen of these islands. Certain fortuitous circumstances, such as bad winds, native ceremonies, and the discovery by our sailors of a roasted shark in a village, delayed the voyage at various points and occasioned stops of several days at Tuvuca, Lakeba, Kabara, and Ono i Lau, which permitted more extensive collecting. At Munia, I remained over a week-end as guest of the owner of the island, Mr. H. H. Steinmetz.

On Taviuni I lived with Dr. R. S. Trotter who had charge of the government hospital at Waiyevo, and collected chiefly in the hills back of the native village of Somo Somo. One excursion was made to the mountain lake in the interior and another to the MacKenzie estate at Nagasau, fourteen miles down the coast.

Vanua Levu was twice visited; the first time by crossing from Taviuni to Buca Bay. I remained for some time at Lasema, situated a short distance up the Lasema River, where Mr. G. U. Solney, the proprietor of a saw-mill, extended to me the open hospitality characteristic of his native Australia. At Labasa, quarters were obtained in the officers' barracks of the Colonial Sugar Company and trips made from there into the mountains about Suene. Later, Captain David Robie of Levuka, took me in his launch the ANNIE to Wainunu on the south coast where I lived for a week at the tea plantation as guest of the owners, Captain Robie and Mr. G. C. Barrett.

On Viti Levu I collected in a number of localities, on the Rewa River at Nausori and Koro Vatu, on the Tai Levu coast, at Waiyanitu on the Navua River, about Suva and finally walked across the island,

from Ba to Nadarivatu, then to Koro Vatu by way of Navai and Nasoqo and down the Rewa by launch to Suva. Part of this trip was made possible by Mr. T. Spence, Commissioner at Nadarivatu, who arranged with the chiefs for native porters to carry my equipment.

A month was spent on Kadavu, where I lived at Vunisea with Mr. W. D. E. Alcock, the young magistrate of the island, and made many trips with him and with Mr. T. E. Wilson of Vanua Ava, both of whom took an active interest in my work.

I am indebted to the Colonial Secretary for letters explaining my purpose in the islands to the District Commissioners and to the various native chiefs. Mr. C. W. Knowles, Superintendent of Agriculture, provided laboratory facilities in his office at Suva. Mr. F. P. Jepson, Entomologist of Fiji and Mr. Foy, Manager of the Bank of New Zealand at Suva aided me personally in many ways. Mr. and Mrs. E. Travis Rimmer at Waiyanitu, Mr. C. S. Hunt at Bega on the Rewa River, and the MacKenzies at Nagasau, entertained me in their homes while I was collecting in the vicinity. To all of these and to Mr. Charles Caldwell of Suva, my companion on a number of trips, and to Dr. St. Johnston of Loma Loma, I am grateful for much assistance.

I shall remember the native Fijians, especially those of Lau, Kadavu, and the interior of Viti Levu and Vanua Levu, as the kindest, most hospitable folk I have known. The best of their houses, food, and boats were always at my disposal. At each village the reception was the same. The chief moved out of his house. I moved in. Shortly afterward the entire female population would appear, each with a basket of food containing quantities of vegetables, boiled bananas, prawns, fish, and usually a recently killed and hurriedly cooked chicken. In the evenings after yangona (cava) had been served, with appropriate ceremonies, the younger set, decorated for the occasion with garlands and coco-nut oil, would enter the house, and sing native songs till I was sleepy; sometimes longer. With a desire to be courteous, a desire that has been educated out of many who live in contact with the whites, they acted as guides and porters and brought to me many specimens of the "little beasts" that I was searching for. I have lived among many less pleasant and considerate people.

THE ANT FAUNA.

The study of Fijian ants has a short history. In 1866 Mayr (Sitz. Akad. wiss. Wien, 1866, 53, p. 484-518) described *Odontomachus angulatus*, *Pheidole oceanica*, *Cardiocondyla nuda*, *Camponotus cristatus*, *C. laminatus*, *C. schmeltzii*, and *C. dentatus*. In 1870 (Verh. Zool. bot. gesellsch. Wien, 1870, 20, p. 939-996) the same author described *Pheidole umbonata*, *Camponotus (Colobopsis) oceanicus*, and *C. carinatus* and noted *C. rufifrons* F. Smith from Ovalau. These eleven species were all taken on Ovalau and Mayr described his species from specimens in the Godeffroy Museum.

In the present paper seventy-eight species belonging to twenty-six genera are listed and two genera are described as new. In addition to these there are in the collection several species of *Prenolepis* and *Pheidole* which I have not been able to identify, as the males or soldiers were not found.

As Turner (Trans. Ent. soc. London, 1918, p. 333-346) has recently listed only fifty-three species of Hymenoptera from Fiji, among which are included no species of such widely distributed and extensive families as the Mutillidae, Proctotrypidae, Cynipidae, and Tenthredinidae, it will be seen that the insect fauna of Fiji has been almost entirely neglected.

In the Lau Archipelago, on Kabara and Waquava, where native forests still exist, I found two species of *Camponotus* belonging to the strictly Fijian subgenus *Myrmegonia*. *Strumigenys (Cephaloxys) vitiensis*, sp. nov. was taken on Kabara and *Pheidole umbonata* Mayr was found to be abundant on Vanua Mbalavu, Munia and Tuvuca. *Pheidole megacephala* Fabr. and *Solenopsis geminata rufa* Jerd. are not among my material. Their absence is one of the few interesting features of the Lau fauna. Besides these, Lau yielded only "tramp" species found in similar localities the world over. On Lakeba, one of the oldest of the islands, I wandered for weary days over the eroded red clay hills, searching for specimens in the sparse forests of *Casuarinas* and *Pandanus* palms and found almost nothing. So, when on the beach at Munia I saw the trunk of a large sago-palm that must have floated from at least as far as Taviuni, the nearest natural habitat of these Cycads, it was easy to imagine such a log as having originally brought to the Archipelago the nucleus of its entire land fauna. However, the general aspects of animal life in Lau are the same as on the larger islands, though very much limited by ecological conditions. On Vanua Levu, which is rich in endemic Fijian forms, when I collected

in similar districts of red clay soil with *Casuarina* and *Pandanus* palms, my results were the same as on Lakeba. The fauna of Fiji, excepting that of the littoral portions, is a forest inhabiting one, and when the forests have been destroyed, as in most of Lau, the dependent animal forms have also disappeared, so the negative character of the Lau fauna has little zoögeographical significance.

The littoral fauna of the larger islands is much the same as in Lau, and the other South Sea Island groups; few of the plant or animal forms are endemic to Fiji.

There is little virgin forest in Fiji. Seemann, in the '60's, states that at that time none remained. This is due to the native custom of clearing land for gardens by firing the forest. The moss forests of the mountains about the lake on Taviuni and on Mt. Victoria and Mt. Washington are exceptions and the rain forests at Nadarivatu, if not virgin forest, are at least magnificent woods.

In the forested districts, insect life is abundant, compared with other insular regions, and chiefly endemic, though foreign species are coming in rapidly. The life of mountain ranges of each of the larger islands is similar to the others and careful collecting at any good locality (Nadarivatu was the best) yields the majority of the species of the group, though each island has peculiar species, or the same species is represented on other islands by subspecific or varietal forms, a condition typical of island faunas.

Sixty-four species of ants have been recorded from New Caledonia, so the ants of that island and Fiji are approximately equally well developed. Forty-two genera are known from Fiji and New Caledonia together, and of these the following seventeen genera are common to both:—*Trachymesopus*, *Ponera*, *Lobopelta*, *Anochetus*, *Odontomachus*, *Pheidole*, *Monomorium*, *Solenopsis*, *Rogeria*, *Tetramorium*, *Strumigenys*, *Iridomyrmex*, *Technomyrmex*, *Tapinoma*, *Plagiolepis*, *Camponotus*.

Of these, *Trachymesopus*, *Technomyrmex*, and *Tapinoma* are represented only by tropicopolitan species. Two genera, *Promeranoplus* and *Prodicroaspis*, are not known except from New Caledonia and two, *Poecilomyrma* and *Archaeomyrmex*, are apparently confined to Fiji.

Genera of ancient aspect present in Fiji and not known from New Caledonia are *Wheeleripone*, *Proceratium*, *Cerapachys*, *Cardiocondyla*, *Adelomyrmex*, *Triglyphothrix*, and *Rhopalothrix*, most of them widespread in distribution and not characteristic of any particular zoögeographical region.

In New Caledonia, on the other hand, occur *Myrmecia*, *Amblyopone*, *Rhytidoponera*, *Prionogenys*, *Orectognathus*, and *Leptomyrmex*, genera typical of Australia, none of which occur in Fiji. In addition, *Vollenhovia*,¹ *Oligomyrmex*, *Lordomyrma*, *Meranoplus*, *Xiphomyrmex*, and *Polyrhachis*,¹ Indomalayan genera, are found there and are lacking in Fiji.

Of the seventy-eight species listed, eight species (*Monomorium pharaonis*, *M. floricola*, *Tetramorium simillimum*, *T. guineense*, *Tapi-noma melanocephalum*, *Plagiolepis longipes*, *Prenolepis longicornis*, and *P. burbonica*) are tropical "tramp" species recently introduced; twelve species (*Ponera biroi*, *Anochetus graeffei*, *Pheidole umbonata*, *P. oceanica*, *Cardiocondyla nuda*, *Solenopsis cleptes*, *Rogeria stigmatica*, *Tetramorium tonganum*, *T. pacificum*, *Strumigenys godeffroyi*, *Iridomyrmex anceps*, and *Technomyrmex albipes*) occur also in other parts of the Melanesian region; three species (*Euponera stigma*, *Odontomachus haematoda*, and *Camponotus maculatus*) are ancient species of almost world-wide distribution.

The remaining fifty-five species constitute a peculiar ant fauna; the 71%, not counting subspecies and varieties, which would considerably increase the proportion, indicates a very high degree of endemism.

The chief peculiarity of the ant fauna is the unusual development of the genera *Cerapachys*, *Lobopelta*, *Pheidole*, *Rogeria* (subgenus *Irogera*), *Strumigenys*, and *Camponotus* (subgenus *Myrmegonia*). The occurrence of so many species of *Lobopelta*, with its ergatoid females, is especially interesting. The absence of any of the varieties of *L. falcigera*, a widely distributed species which occurs in Hawaii should also be noted. Equally interesting, and more important from the distributional standpoint is the absence of any species of *Dolichoderus*.

In general, Fiji and probably also the New Hebrides, belongs with New Caledonia in the Melanesian subregion, characterized as far as genera are concerned, chiefly by negative resemblances but with groups of peculiar species, many of archaic, though not primitive types. The presence in Fiji of such relict forms as the frogs, Iguana, boas, *Phyllium*, and the luminous elaterid *Photophorus* confirms the results of a study of the ant fauna. Fiji may be considered as the western limits of this region, and the absence of all definite affinities with regions other than the ancient Tropicopolitan, indicate a longer isolation than that of New Caledonia.

¹ Probably recently introduced.

MYRMECOPHILOUS PLANTS.

Bulbous epiphytes of the genera *Myrmecodia* and *Hydnophytum*, I found none in flower so cannot differentiate between the genera, are common in Fiji. They are known to the natives by the name "seki-seki," and are used in the witchcraft ceremony of "drau ni kau."

One takes from his enemy a hair from his head, some food left from his meal or some other thing intimately connected with him. This is placed with leaves of *Myrmecodia* and parts of other plants in a bamboo tube, which is then sealed. A curse is wished on the enemy and as the contents of the tube ferment or decompose, he becomes afflicted with a malady, (boils seem to be the favorite curse) and can only be cured by unsealing the jar and letting the gas escape. There is no doubt that, to the native mind, this is taken seriously and the psychological and resultant physical affects on one who knows he is being bewitched by "drau ni kau," are real. The government has framed laws against the practice. On our walk across Viti Levu, the people in one village gravely warned my boys of the danger in the next village and cautioned them against leaving crumbs of food about. Portions of the bulb are considered a remedy for deafness by the natives about Nadarivatu.

At the edge of the moss forest by the Taviuni Lake, I found, on the stunted trees, a number of large bristly bulbs. Each of these was tenanted by a populous colony of *Iridomyrmex nagasau* subsp. *alticola*. In the forest on the McKenzie estate at Nagasau, another species of bulb, smaller and less bristly was abundant high in the trees. Of a dozen examined, all contained colonies of *Iridomyrmex nagasau*. A species at Nadarivatu occurred in similar situations, but, instead of always sheltering one certain species of ant, was used as a nesting site by various species of *Iridomyrmex*, *Camponotus*, *Poecilomyrma*, and *Pheidole*, and many contained no ants at all, but myriopods, spiders, scorpions, or geckos and their eggs.

In the preparation of this paper, Prof. W. M. Wheeler has aided me repeatedly and his collection has been always available for comparisons.

The majority of the drawings were made by Dr. R. S. McEwen.

1. *CERAPACHYS* (*CERAPACHYS*) *VITIENSIS*, sp. nov.

Worker. Length 3 mm.

Head a third longer than broad, as broad in front as behind, with moderately convex sides, angulate occipital corners and broadly and shallowly concave

occipital border. Carinae of cheeks strong, tridentate, the two anterior teeth blunt, the basal one smaller and more acute. Mandibles finely denticulate. Frontal carinae approximated, elevated, broadly rounded. Antennae thick, their scapes extending to a point opposite the posterior border of eyes; funicular joints 2-10 transverse; terminal joint as long as the six joints preceding. Eyes rather large and convex, situated at sides of head a little in front of middle. Thorax narrower than the head, more than twice as long as broad, slightly narrowed in the mesonotal region, as broad in front as behind, without sutures; in profile moderately convex above, rounding into the declivity which is flat and submarginate laterally. Petiole a little narrower than epinotum, from above distinctly broader than long, slightly broader in front than behind, rounded at sides posteriorly, and truncate in front; in profile a little longer than high, with a stout tooth anteroventrally. Postpetiole broader than petiole, and broader than long, slightly narrowed in front, sides feebly convex. First gastric segment a little longer than broad and as broad in front as behind. Pygidium with a circular, impressed disc at middle, its border spinulose. Legs rather long and slender.

Shining. Mandibles with scattered punctures. Head and thorax with piligerous punctures, which are fine and scattered on front of head, coarser and irregular on sides of occiput, finer and sparse on the dorsum of thorax and very coarse and confluent on plurae. Punctures of petiole and postpetiole very coarse, and abundant but not confluent. Gaster with finer, regular punctures.

Erect hairs abundant, longest on gaster and interspersed with shorter ones on thorax.

Black; head and gaster brownish; appendages reddish brown.

Vanua Levu: Lasema.

Described from six workers taken beneath a stone in a bog. The dorsum of the thorax is mostly smooth, with a few fine scattered punctures. *Type*.—M. C. Z. 8,681.

1a. CERAPACHYS (CERAPACHYS) VITIENSIS Mann, subsp.
SCULPTURATUS, subsp. nov.

Worker. Length 3 mm.

Differing from typical *vitiensis* having the front of head more coarsely punctate and the thoracic dorsum with very coarse punctures, and only a small smooth surface in the mesonotal region.

Viti Levu: Nasoqo.

Described from a unique worker.

2. CERAPACHYS (CERAPACHYS) MAJUSCULUS, sp. nov.

Worker. Length 4.50 mm.

Head a fourth longer than broad, as broad in front as behind, with moderately convex sides and shallowly and not broadly concave posterior borders. Mandibles finely denticulate. Carinae of cheeks prominent, armed with three widely separated blunt teeth. Frontal carinae prominent and approximated, broadly rounded in profile. Antennal scapes extending a little beyond the posterior border of eye. Funicular joints 2-10 transverse; terminal joint as long as the five preceding joints together. Eyes convex, situated at sides of head a little in front of middle. Thorax subquadrate, a little more than twice as long as broad, and very slightly narrowed at mesonotal region; in profile moderately convex. Epinotal declivity flat, submargined laterally and above. Petiole broader than long, as broad in front as behind; in profile higher than long, with a stout anteroventral tooth. Postpetiole broader than petiole, broader than long, and slightly narrowed in front. First gastric segment a fourth longer than broad. Pygidium flat discally, its border spinulose.

Shining. Mandibles with sparse, coarse punctures. Head and thorax with moderately strong, scattered piligerous punctures. Petiole and postpetiole with more abundant and much coarser punctures. Gaster finely punctate; the apical borders of each segment and the margins of the pygidium with coarse, shallow punctures.

Fine erect hairs moderately abundant on head, body, and appendages.

Black; gaster brownish; appendages dark reddish brown.

Viti Levu: Nadarivatu.

Described from a number of workers, from several colonies taken with larvae and pupae beneath stones. *Type*.—M. C. Z. 8,682.

Key to Fijian Species.

1. Length 4.5 mm. Punctuation of head and thorax fine, that of petiole and postpetiole stronger, but widely separated.....*majusculus* Mann

Length 3 mm. Punctuation of head and thorax coarse, that of petiole very coarse and dense, giving these parts a subrugose appearance.....2.

2. Dorsum of thorax at middle with fine punctures, sparsely distributed and much finer than those at the sides of dorsum and on pleurae.

vitiensis Mann

Dorsum of thorax at middle with coarse punctures similar to those of pleurae.....*vitiensis* subsp. *sculpturatus* Mann

3. CERAPACHYS (SYSCIA) CRYPTUS, sp. nov. Fig. 1.

Worker. Length 4 mm.

Head a fourth longer than broad, as broad in front as behind, sides feebly convex, posterior border shallowly concave. Mandibles elongate triangular,

blades denticulate. Carinae of cheeks not very strong, and crenulate rather than toothed. Clypeus short, broadly rounded at anterior border. Frontal carinae approximated in front, fused behind. Antennae short and thick, their scapes less than half as long as head, funicular joints 2-7 slightly transverse, terminal joint about as long as the four preceding joints. Thorax much narrower than the head, $2\frac{1}{2}$ times as long as broad, broadest in the pronotal

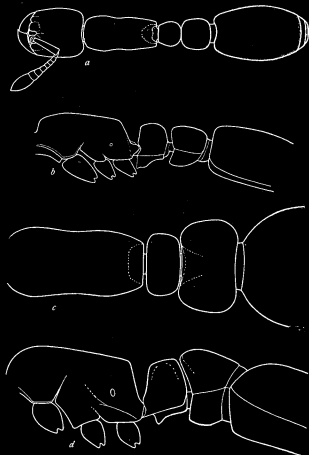


FIG. 1.—*Cerapachys (Syscia) cryptus* Mann. a. Worker. From above. b. Worker. Lateral view of thorax and petiole. c. Female. Thorax and petiole from above. d. Female. Lateral view of thorax and petiole.

region and narrowest in the mesothoracic region, humeri rounded. Epinotal declivity flat, submargined laterally. Petiole a little narrower than epinotum, scarcely broader than long, sides scarcely convex, in profile higher than long, rounded above and behind, flat in front, with a stout tooth anteroventrally. Postpetiole a little broader than long and somewhat narrowed in front. Basal gastric segment very long, twice as long as broad and nearly five times the length of the other segments together. Pygidium small, its surface impressed, its border strongly denticulate.

Subopaque. Mandibles with coarse punctures and fine striae. Head, thorax, and abdomen covered with moderately coarse punctures and rugulose between them, the gaster less coarsely so than the rest.

Fine, silky, yellow erect pubescence uniformly abundant throughout.

Reddish brown.

Female. Length 5.25 mm., apterous.

Head proportionately shorter than in worker. Eyes small and flat, situated well in middle of front of sides of head. Ocelli well developed. Thorax very similar to that of worker. Petiole as broad as epinotum, more than twice as broad as long and depressed at the middle of dorsal surface, with anterior angles subgibbous; in profile distinctly higher than long, armed anteroventrally with a stout tooth. Postpetiole very large, nearly twice as long as the petiole and very much broader, with the dorsal surface distinctly and broadly impressed at middle. Gaster long and slender; first segment twice as long as broad, as broad in front as behind, with subparallel sides.

Less rugose than worker. Thorax covered with irregular and unevenly distributed punctures, and more shining than in the worker.

Color as in worker.

Viti Levu: Nadarivatu.

The specimens are from a large colony found beneath a big stone after a heavy rain. A small pocket in the earth, about an inch and a half in diameter and two thirds of an inch deep, was packed with larvae and adults, but no pupae were present.

The single female is pale in color, and I should consider it a callow were not all of the large series of workers in the same colony similarly colored. It differs from the worker strikingly in the structure of the petiole and postpetiole but the thorax is similar in structure in both phases. *Type*.—M. C. Z. 8,683.

3a. *CERAPACHYS (SYSCIA) CRYPTUS* Mann, subsp. *FUSCIOR*, subsp. nov.

Worker. Length 4 mm.

Differing from *cryptus* in sculpture. The petiole and postpetiole are much more coarsely and deeply punctate and the punctures of the gaster larger and deeper and more regular.

The color is dark reddish brown to black, with the gaster and appendages lighter.

Taviuni: Somo Somo.

Several small colonies with pupae were found beneath stones after rains. When disturbed the workers roll up and feign death, making no attempt to sting when picked up. *Type*.—M. C. Z. 8,684.

4. *WHEELERIPONE ATERRIMA*, sp. nov. Fig. 2.

Worker. Length 2.50–3 mm.

Head a fourth longer than broad, slightly narrowed in front, sides moderately convex, posterior corners rounded, occipital border very feebly concave at middle. Mandibles elongate, their blades with small, widely separated



FIG. 2.—*Wheeleripone aterrima* Mann. Worker. Lateral view of head, thorax, and petiole.

and blunt denticulae. Clypeus rather flat at middle, rounded at anterior border. Frontal area distinctly impressed, carinate at middle. Frontal carinae moderately divergent, extending to a point about opposite the posterior border of eye. Antennae slender; scapes surpassing occipital corners by more than one fourth of their length; first funicular joint nearly as long as the second and third together, joints 2–7 about as long as broad, 8–10 longer than broad; terminal joint as long as the two preceding joints. Eyes convex, situated at middle of sides of head. Thorax robust, pronotum one and two thirds times as broad as long, with very broadly rounded humeri; in profile rather flat. Promesonotal impression fine, but very distinct. Mesonotum more than three times as broad as long, surface flattened. Mesoepinotal impression rather broad at middle. Basal portion of epinotum feebly convex, about as long as the declivity, from which it is separated in profile by a rounded angle. Petiole broader than long with strongly rounded sides and straight anterior and posterior borders; in profile higher than long and convex above,

armed anteroventrally with a large, lamellate tooth, obtusely angulate in front. First gastric segment toothed anteroventrally. Legs long and rather slender.

Strongly shining. Mandibles with very sparse punctures. Head, thorax, and abdomen with coarse piligerous punctures which are stronger and most abundant on cheeks, occiput, and sides of front, sparse on the other parts.

Very long and silky yellow erect hairs rather sparsely distributed on thorax and abdomen, shorter on head and much shorter on appendages.

Color jet black; appendages bright reddish brown.

Female. Length 3.25 mm.

Resembling the worker, except for the usual sexual differences. The eyes are larger, the ocelli well developed. The wings are hyaline, with veins and stigma fuscous. Parapsidal furrows short and straight.

The sculpture is similar to that of the worker; head coarsely punctate, the remainder irregularly and sparsely punctate.

Male. Length 2.5 mm.

Head, excluding eyes, distinctly longer than broad, rather broadly rounded behind. Eyes convex, less than half as long as sides of head, situated a little in front of middle. Ocelli large. Mandibles very well developed, similar in shape to those of worker. Clypeus flattened at middle, broadly rounded at anterior border. Frontal carinae short and curved. Antennae 14-jointed, slender, their scapes extending a little beyond posterior borders of eyes, 1st funicular joint rounded, a little shorter than the second, remaining joints cylindrical, the second twice as long as broad, the others increasing in length toward the apex, terminal joint tapering, as long as the two preceding joints and about five times as long as broad. Thorax robust, broadest in front of wing insertions. Mesothorax with strong Mayrian furrows, margined along apical half of border. Scutellum convex, broader than long. Base of epinotum feebly rounded, about half as long as the flat declivous portion. Petiole in profile longer than deep, narrowed and evenly convex above; from above, a little longer than broad and slightly narrowed in front. Gaster slender. Genitalia prominent; penicelli large, stipites elongate and coarsely ciliate apically.

Shining. Head rugosely punctate, the remainder with scattered irregular punctation.

Pilosity similar to worker.

Reddish brown throughout. Wings hyaline, veins and stigma brown.

Viti Levu: Waiyanitu (Type-locality). Vanua Levu: Lasema, Suene. Kadavu: Vanua Ava. Taviuni: Mountains south of Somo Somo.

Occurs in small colonies beneath stones, not commonly, though widely distributed. *Type*.—M. C. Z. 8,685.

5. *PROCERATIUM RELICTUM*, sp. nov. Fig. 3.

Worker. Length 3.75 mm.

Head a little longer than broad, slightly narrowed in front, with very feebly convex sides, rounded corners and straight occipital border. Mandibles elongate triangular acuminate apically, rather strongly narrowly convex at middle of outer border; blades with seven stout, triangular, separated teeth. Clypeus very short and rounded in front. Frontal carina short, moderately arcuate. Frontal area strongly impressed. Anterior two thirds of front with a median carina, which becomes more distinct apically. Antennal scapes much thickened apically, extending five sixths the distance to occipital corners; funicular joints 2-3 a little longer than broad, joints 4-10 slightly transverse, terminal joint as long as the three joints preceding. Thorax robust, broadest

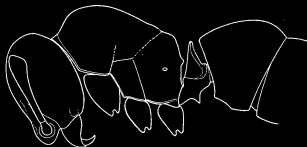


FIG. 3.—*Proceratium relictum* Mann. Worker. Lateral view of head, thorax, and petiole.

at humeri, pronotal region rounded at sides. Basal portion of epinotum with a suture-like transverse impression; declivity shallowly concave, margined laterally, the margins with a stout triangular tooth a little above middle. Petiole squamiform, its border narrow, broadly rounded above, anteroventral tooth elongate triangular. First gastric segment as long as broad.

Moderately shining. Mandibles coarsely and densely striate. Head rugulose and finely and rather densely punctate, the remainder finely but not densely punctate, and not rugulose.

Erect pilosity and silky and recumbent hairs moderately thick on head, body, and appendages.

Dark reddish brown; appendages lighter.

Female (decalated). Length 4.5 mm.

Eyes small, flat, situated at sides of head a little behind the middle. Mesonotum little convex; parapsidal furrows less than a third as long as mesonotum. Scutellum subcircular. Base of epinotum very short and flat, separated from

declivity by an obtuse margin; declivity concave above, convex below, margined at sides, the margins developed into very large stout angles at upper corners.

Sculpture, pilosity, and color as in worker.

Taviuni: Somo Somo.

Described from seven females and a solitary worker found under different stones in the hills back of the village. The adults are very slow in movement, but active with their stings.

6a. *EUPONERA* (*TRACHYMESOPUS*) *STIGMA* (Fabricius), var. *QUADRIDENTATA* (F. Smith).

Ponera quadridentata Smith, Journ. proc. Linn. soc. London. Zool., 1858, 3, p. 143, ♀.

Viti Levu: Waiyanitu. Vanua Levu: Lasema.

A very few workers and females found in decaying logs, belong to this variety, which is known to be distributed through the islands from Aru to Fiji. It probably occurs also in Samoa and the other larger and wooded Polynesian Islands.

7. *PONERA VITIENSIS*, sp. nov. Fig. 4.

Worker. Length 3.10–3.25 mm.

Head a little longer than broad, slightly narrowed in front, with moderately convex sides, broadly rounded occipital angles and narrowly and distinctly concave border. Mandibles with 10–11 small triangular teeth. Clypeus convex at middle, not carinate, rounded at anterior border. Antennal scapes slender at basal half, moderately thickened apically, barely attaining occipital corners; first funicular joint as long as the second and third together, all the joints longer than broad, terminal joint a little longer than the two preceding joints together. Eyes small, but distinct, situated in front of anterior third of sides. Thorax slender, with strong sutures. Pronotum about as long as broad, rounded at sides and feebly convex above. Mesonotum suboval, a little broader than long. Base of epinotum as long as the declivity, narrowed above, separated from declivity by a very broad angle. Declivity flat, rather narrowly margined at basal half of sides. Petiolar node in profile narrowly rounded above, with convex anterior and slightly concave posterior surfaces, from above three times as broad as long, convex in front and at sides and narrowly concave at middle of posterior border.

Shining. Mandibles with a few coarse punctures. Head and body finely, not very densely, punctate.

Short, erect yellow hairs exceedingly sparse on thorax and abdomen and fine yellow pubescence everywhere.

Brownish yellow, head more brownish than thorax and abdomen.

Female. Length 3.5 mm.

Very similar to worker. The petiole more narrowed apically. The eyes are large and moderately convex, situated at sides of head at a distance of two thirds their length from base of mandibles. Wings hyaline with pale veins and stigma.

Viti Levu: Nadarivatu.

Described from several workers and a single female from small colonies found beneath stones, generally deeply imbedded ones in damp situations. *Type*.—M. C. Z. 8,686.



FIG. 4.—*Ponera vitiensis* Mann. Worker. Lateral view of thorax and petiole.

Ponera vitiensis is related to *truncata* F. Smith, *moczaryi* Emery, and *pruinosa* Emery, but may be distinguished from the latter two by its much smaller eyes and from *truncata* in the absence of carina on clypeus and in having the petiole more narrowed above and from all three species by its much lighter color.

Sa. *PONERA BIROI* Emery, subsp. *RUGOSA*, subsp. nov.

Worker. Length 3-3.5 mm.

Head a fourth longer than broad, a little narrowed in front, sides feebly convex, posterior corners narrowly rounded, occipital border concave. Mandibles elongate, their blades with eight unequal triangular teeth. Clypeus narrowly and shallowly concave at middle of anterior border. Antennal scapes extending five sixths the distance to occipital corners; first funicular joint as long as the second and third together; joints 2-10 slightly transverse,

terminal joint thick, as long as the two preceding joints. Eyes composed of 4-5 facets, situated at anterior fourth of sides of head. Thorax elongate, slightly convex above, promesonotal impression distinct, mesoepinotal impression obsolete. Pronotum a little broader than long. Epinotal declivity flat, obtusely margined at sides, the margin with a broadly rounded angle at middle. Petiolar node in profile with nearly straight anterior and posterior surfaces, rounded above, the top about one half as long as the base; from above, much broader than long and rounded at sides.

Head and thorax opaque.

Feebly shining. Mandibles, gaster, and appendages shining. Mandibles with distinct, separated punctures. Head, thorax, and epinotum densely cribrately punctate, petiole and gaster more shallowly punctate.

Pruinose pubescence rather abundant, fine scattered erect hairs sparsely distributed on head, body, and appendages.

Dark reddish brown to black. Legs lighter.

Viti Levu: Nadarivatu.

Near *P. perkinsi* Forel from Hawaii, but larger, more robust and more coarsely sculptured. There is a faint depression at the mesoepinotal suture, which does not, however, break the sculpture and is not as distinct as in *perkinsi*. The occiput is distinctly concave. Because of these characters it is related to *biroi* Emery, a New Guinea form, from which it differs in having the head more strongly cribrately punctate and the joints of the funiculus only slightly broader than long. *Type*.—M. C. Z. 8,687.

9. *PONERA TURAGA*,¹ sp. nov.

Worker. Length 3.25-3.75 mm.

Head distinctly longer than broad, occipital border rather strongly and narrowly concave. Mandibles elongate, their blades with 8-9 irregular teeth. Clypeus projecting and rounded at middle of anterior border. Antennal scapes extending six sevenths the distance to occipital corners; first funicular joint longer than the second and third together, joints 2-7 as long or slightly longer than broad, the remaining joints, except the terminal, a little broader than long, terminal joint thick and shorter than the two preceding joints together. Eyes composed of eight ommatidia, situated at anterior fifth of sides of head. Thorax robust, promesonotal suture strong, mesoepinotal impression barely discernible. Declivous portion of epinotum flat, roundly margined at sides. Petiolar node from above two and one half times as broad as long, straight in front and behind and rounded at sides; in profile thick,

¹ "Turaga" (Fijian) — Chief.

subquadrate, with flat anterior and nearly flat posterior surfaces, broadly rounded above. First gastric segment truncate in front.

Very feebly shining. Mandibles sparsely punctate and shining. Head rather strongly, the thorax feebly rugulose punctate. Petiole and gaster densely and regularly, though shallowly punctate.

Fine, recumbent, yellow pubescence abundant on head, body, and appendages.

Color light ferruginous, throughout.

Female. Length 4 mm.

Differing from the worker in having the petiole a little narrower in profile. The eyes are large and moderately convex, situated at the anterior third of sides of head.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu. Taviuni: Somo Somo, Nagasau. Kadavu: Buke Levu, Vanua Ava.

A distinct species in its large size and light color; rugulose head, narrowly and rather strongly concave behind, and elongate funicular joints, which characters separate it from *biroi* Emery the species most nearly related. *P. turaga* is widespread in distribution but not common. *Type*.—M. C. Z. 8,688.

10. *PONERA COLAËNSIS*, sp. nov.

Worker. Length 2.25 mm.

Head subquadrate, longer than broad, sides nearly straight, occipital border broadly and very shallowly concave. Mandibles with three stout, triangular teeth on apical half and a row of 5-6 small denticules posterior to these. Clypeus rounded at anterior border. Antennal scapes not quite attaining occipital corners; funicular joints 2-6 strongly transverse, 7-11 slightly transverse, terminal about as long as the two preceding joints together. Eyes distinct, though very small, composed of three facets, situated at anterior fifth of sides of head. Thorax flat above, promesonotal impression distinct, mesoepinotal, obsolete above. Pronotum broader than long and rounded at sides. Mesonotum constricted at sides. Base of epinotum narrow, basally broadened at apex, sides nearly straight; discal surface of declivity broader than long, flat, distinctly margined at sides. Petiole from above more than three times as broad as long, with rounded front and side and concave posterior border; in profile, straight in front, concave behind, highest at anterior angles, with the dorsal surface moderately convex; distinctly margined at sides.

Shining except head and prothorax which are subopaque. Mandibles

with a few very sparse punctures. Head densely and cribrately punctate, thorax and petiole more shallowly and gaster more coarsely punctate than the head.

Erect hairs short and very sparse on head, body, and antennae; fine, short, silky, yellow pubescence abundant.

Reddish brown, legs and apical third of antennal funiculus brown-yellow.

Viti Levu: Waiyanitu.

Described from a unique worker. Near *P. selenophora* Emery from New Guinea, from which it differs in the longer head with less arcuate sides, and in the singularly coarse sculpture of the gaster. The regular, separated punctuation of the thorax is peculiar, resembling that of *Rogeria epinotalis* Mann from the Solomons.

11. *PONERA MONTICOLA*, sp. nov. Fig. 5.

Worker. Length 2.25 mm.

Head a third longer than broad, slightly narrowed in front, sides feebly convex, occipital angles broadly rounded, border truncate.

Mandibles elongate, with 8-9 small teeth, the anterior three acute, the



FIG. 5.—*Ponera monticola* Mann. Worker. Lateral view of thorax and petiole.

others blunt. Clypeus strongly convex at middle, rounded at anterior border. Antennae slender, their scapes attaining occipital border; first funicular joint as long as the second and third joints together, joint 2 a little longer than broad, 3-10 scarcely broader than long, terminal joint distinctly longer than the two preceding together. Eyes small, of 4-5 ommatidia, situated at anterior fourth of sides of head. Thorax elongate, nearly flat above, promesonotal and mesoepinotal sutures distinct, but not profound. Mesonotum nearly circular, a little broader than long and half as long as pronotum. Base of epinotum twice as long as broad and as long as the declivity, which is flat and margined at sides. Petiole distinctly broader than epinotum, the dorsal surface from above twice as broad as long; in profile more than twice as high

as long, narrowed and rounded above, with convex anterior and flat posterior surfaces. Legs long and slender.

Shining throughout. Mandibles with a row of fine punctures parallel to edge of blade. Head and body very finely punctate.

Pubescence of head and thorax fine, short, and erect, that of gaster more abundant, longer, and recumbent. Erect hairs fine, short, and exceedingly sparse.

Reddish brown, antennae and legs lighter.

Viti Levu: Nadarivatu. (Type-locality). Ovalau: Levuka.

Occurs in small colonies beneath stones and in rotten wood.

Resembles *P. kalakauae* Forel from Hawaii. Type.—M. C. Z. 8,689.

The two species may be distinguished as follows:—

First funicular joint as long as the three following joints together. Eyes composed of 7-8 facets. Base of epinotum broader behind than in front. Mesonotum nearly as long as pronotum.....*kalakauae* Forel.

First funicular joint not as long as the three following together. Eyes of 4-5 facets. Mesonotum barely more than half as long as pronotum. Base of epinotum as broad in front as behind. Petiole higher.....*monticola* Mann.

12. *LEPTOGENYS (LOBOPELTA) LETILAE*, sp. nov. Fig. 6.

Worker. Length 6-7 mm.

Head a little longer than broad, slightly broadest in front, posterior corners broadly rounded, occipital border nearly straight. Mandibles slender, with



FIG. 6.—*Leptogenys (Lobopelta) letilae* Mann. Worker. Lateral view of thorax and petiole.

the apical and basal borders rounding into each other, the former edentate and slightly concave. Clypeus flattened apically, projecting and narrowly rounded at middle of apical border, with a delicate projecting spine; the median carina strong and acute at basal half and becoming feebler apically. Antennae slender, their scapes surpassing occipital corners by nearly one fourth of their

length; funicular joints all much longer than broad, gradually decreasing in length toward apex, terminal joint shorter than the next two joints together. Eyes convex, situated at a distance from base of mandibles equal to $1\frac{1}{2}$ times their diameter. Pronotum about as broad as long. Mesoëpinotum without trace of suture, three times as long as broad and evenly rounding into the short, flat declivous portion. Petiole from above longer than broad, narrowed and rounded in front, straight behind; in profile about as long as high, with the anterior and posterior surfaces together forming an even arc, posterior surface with a shallowly concave disc. Gaster and legs slender.

Shining. Mandibles with several coarse punctures. Sides of clypeus irregularly and coarsely striate. Head with coarse punctures, which are regular and separated on the occiput, vertex, and upper portion of front, but become confluent and interspersed with irregular striae on the anterior portions of head inward from the eyes. Punctuation of thorax and abdomen distinct and regular, though much finer than that of head.

Very fine and silky erect hairs moderately abundant on head and body and shorter and stiffer ones on appendages.

Jet black; appendages and apex of gaster ferruginous.

Female. Length 7 mm.

Ergatoid. Differing from the worker only in the greatly enlarged gaster and the shape of the petiole which in profile is much higher than long, with distinct dorsal and anterior surfaces, the latter impressed basally. The mesoëpinotal suture is feebly indicated.

Male. Length 6 mm.

Head, excluding eyes, longer than broad, rather broadly rounded behind. Mandibles elongate, spatulate. Clypeus carinate at middle, sloping on either side, broadly rounded in front. Antennal scapes more than half as long as eyes; first funicular joint thicker than the second and about a third as long, remaining joints cylindrical, elongate, gradually decreasing in length toward apex, terminal joint one and one third times as long as penultimate. Eyes occupying four fifths of sides of head. Ocelli very large. Thorax robust. Mayrian and parapsidal furrows very strong. Scutellum convex. Petiole similar to that of worker, but proportionately longer and impressed at middle of dorsoposterior border. Gaster long and slender.

Shining and finely punctate throughout.

Black. Legs and antennae (except the scapes) brown. Wings hyaline, with brown veins and stigma.

Viti Levu: Nadarivatu.

Occurs in small colonies of which I found numbers, generally beneath logs or stones. Each of the four colonies contained a single female.

The species is very distinct in the structure of the petiole. *L. punctata* Emery, from New Caledonia, nearly related, has similar sculpture but the petiole is different and the antennal scapes much shorter. *Type*.—M. C. Z. 8,690.

13. *LEPTOGENYS (LOBOPELTA) FOVEOPUNCTATA*, sp. nov.

Worker. Length 8.5 mm.

Head distinctly longer than broad, broadest in front, posterior border straight, sides very slightly convex. Mandibles rather thick, their blades concave. Clypeus broadly triangular, at middle sharply carinate for entire length. Antennal scapes surpassing occipital corners by about one fourth their length. Eyes large, moderately convex, situated at sides of head well in front of middle. Thorax stout. Pronotum broader than long. Mesopinotum slightly arcuate in profile, broadly rounding into the epinotal declivity. Petiole in profile about as long as high, flattened in front and behind, feebly concave above, highest behind; from above a little longer than broad, moderately narrowed in front.

Head, thorax, and petiole subopaque; legs and gaster shining. Mandibles very coarsely punctate. Head, thorax, and petiole foveolately punctate, the punctures more dense on the head, those on the upper surfaces of petiole connected by shallow grooves. Gaster, legs, and antennae finely, though distinctly punctate.

Pilosity long, fine, and abundant on head, body, and appendages.

Black; tip of gaster, mandibles, antennal insertions, and the funiculi reddish brown.

Vanua Levu: Suene.

Described from two workers.

Related to *letilae* but is larger and stouter and different from the other Fijian species in the coarse foveolate sculpture of the thorax and epinotum.

14. *LEPTOGENYS (LOBOPELTA) HUMILIATA*, sp. nov.

Worker. Length 3.75 mm.

Head subquadrate, elongate, not appreciably broader in front than behind, sides subparallel, posterior corners rounded, border straight. Mandibles slender, their apical border edentate, concave and separated from basal border by a distinct angle. Clypeus strongly carinate at middle, the anterior projection rather broadly triangular. Antennae thick, their scapes surpassing

occipital corners by one sixth of their length; first funicular joint the longest, second and third subequal, terminal not as long as the two preceding joints together. Eyes very small and little convex, their distance from base of mandibles more than twice their longitudinal diameter. Pronotum a little broader than long. Mesoepinotum without suture, nearly flat above. Petiole from above subconical, broadest behind, narrowed in front, with rounded posterior corners; in profile longer than high, the dorsal surface nearly three times as long as the anterior, and rounding in front and behind into the anterior and posterior surfaces which are flat.

Very shining. Mandibles with coarse punctures. Clypeus irregularly striate. Front of head outward from antennal fossae rugulose, the remainder of head with coarse punctures and the body with regular, widely separated strong, punctures, though not as coarse as those of head.

Dark reddish brown, legs and tip of gaster lighter, antennae yellowish brown.

Viti Levu: Nadarivatu.

Described from two workers. This is a very small species, quite distinct in the shape of the head and in the very small size of the eyes. The mesoepinotum is proportionately broader than in the related Fijian species.

15. *LEPTOGENYS (LOBOPELTA) FUGAX*, sp. nov. Fig. 7.

Worker. Length 5-5.5 mm.

Head distinctly longer than broad, a little broader in front than behind, with slightly convex sides, rounded corners and straight occipital border. Apical

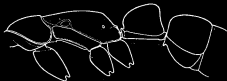


FIG. 7.—*Leptogenys (Lobopelta) fugax* Mann. Worker. Lateral view of thorax and petiole.

borders of mandibles concave, separated from basal borders by a rounded angle, edentate. Antennal scapes surpassing the occipital borders by about one third their length; first, second, and third funicular joints more than twice as long as broad, the remaining joints shorter and thicker, terminal joint distinctly shorter than the two preceding joints. Eyes rather large, their distance from base of mandibles about equal to their longitudinal diameter. Mesoepinotum without impression, slightly convex above, rounding into the

declivity. Petiole much longer than broad, narrowed in front, with the dorsal and anterior surfaces rounding into each other; in profile longer than high, and highest behind. Gaster slender.

Very shining. Mandibles punctate.

Head coarsely punctate, rugulose between frontal carinae and eyes. Clypeus with distinct scattered punctures.

Erect hairs fine and flexuous and moderately abundant on head and body, shorter on appendages.

Jet black, tip of gaster and appendages brown.

Viti Levu: Waiyanitu.

Nearest to *letitiae* but very distinct in its smaller size and more elongate petiole, its longer head and more narrowly rounded clypeal projection. *Type*.—M. C. Z. 8,691.

16. *LEPTOGENYS (LOBOPELTA) NAVUA*, sp. nov. Fig. 8, 9.



FIG. 8.—*Leptogenys (Lobopelta) navua* Mann. Worker. Lateral view of thorax and petiole.

Worker. Length 4.50–5 mm.

Head nearly twice as long as broad, sides nearly straight, slightly broadest anteriorly, posterior corners rounded, border straight. Mandibles concave at apical border, edentate. Clypeus elongate, triangularly produced at middle, sharply carinate for entire length. Antennal scapes surpassing occipital border by about one fifth their length, funiculus rather stout, first, second, and third joints subequal in length, remaining joints gradually decreasing in length, terminal joint scarcely as long as the two preceding joints together. Eyes small, little convex, situated at a distance from base of mandibles appreciably greater than their longitudinal diameter. Pronotum about as broad as long. Mesoöpinotum with a transverse impression near to and parallel



FIG. 9.—*Leptogenys (Lobopelta) navua* Mann. Worker. Front view of head.

with the pronounced promesonotal impression, dorsal surface feebly concave. Petiole from above subconical, broadest behind and evenly narrowed toward front, with rounded posterior corners; in profile, longer than high and highest behind, with short, abrupt anterior face, feebly convex dorsum, and short, rather concave, posterior surface. Gaster long and slender.

Very shining. Mandibles punctate. Clypeus and front of head outward from antennae rugulose and punctate, remainder of head coarsely punctate, the punctures not so close behind as in front. Thorax and abdomen with finer and more widely separated punctures.

Hairs fine, erect, abundant on head, sparse on thorax and abdomen, coarser and suberect on appendages.

Jet black, tip of gaster and appendages brown.

Male. Length 4 mm.

Differing from the male of *letilae* in its very much smaller size and in the shape of the petiole, which is proportionately longer and has the upper and posterior surfaces broadly rounding into each other and not distinct as in *letilae*.

Viti Levu: Waiyanitu.

The punctuation of the head and body of the worker is stronger and more widely separated than in the other Fijian species, and the head very much longer and distinctly broadened in front. The body is slender and delicately formed.

I found this species only once. A small colony was in the ground beneath a stone in a heavily wooded gully. *Type*.—M. C. Z. 8,692.

17. *LEPTOGENYS (LOBOPELTA) VITIENSIS*, sp. nov. Fig. 10.

Worker. Length 8 mm.

Head nearly twice as long as broad, broadest in front, sides feebly convex, posterior angles rounded, border straight. Basal and apical edges of mandibles broadly rounding into each other, the surface of the latter slightly convex to near tip, then a little concave, edentate. Clypeus triangular, narrow, and elongate, strongly and acutely carinate for entire length. Antennal scapes surpassing occipital border by three eighths of their length; second funicular joint the longest, remaining joints elongate, cylindrical and decreasing in length toward the tip; terminal joint a little shorter than the two preceding joints together. Eyes moderately convex, situated at a distance from base of mandibles about equal to their longitudinal diameter. Pronotum a little longer than broad. Mesoëpnotum without suture, very slightly convex above and broadly rounding into the short, flat declivous portion. Petiole very long,

broadest behind, strongly narrowed in front, with a pedunculate anterior portion about twice as long as broad, posterior corners rounded; in profile, longer than high, anterior face sloping, top rounded, posterior surface flat, gaster long and slender.

Very shining. Mandibles with sparse, coarse punctures. Clypeus, cheeks, and anterior part of front densely and irregularly striate, interspersed with coarse punctures. Remainder of head and the body with regular coarse widely separated piligerous punctures, coarsest on the head. Rather short suberect hairs moderately abundant on head and body, a few scattered recumbent hairs on gaster, pubescence lacking. Appendages with stiff, suberect hairs.

Jet black; appendages dark reddish brown to black, antennae and tarsi lighter than the rest.



FIG. 10.—*Leptogenys (Lobopelta) vitiensis* Mann. Worker. Lateral view of thorax and petiole.

Viti Levu: Nadarivatu.

With the exception of *L. letilae*, which is quite abundant, the species of *Lobopelta* are rare in Fiji and I encountered only one colony each of *fugax*, *navia*, *humiliata*, and *vitiensis*. The latter four forms, though quite distinct from each other, belong to a group that includes also *conigera* Mayr and its variety *adlerzi* Forel from Australia, *acutangula* Emery from New Caledonia and *chinensis* Mayr, all of which have the petiole elongate. *L. vitiensis* is most nearly related to *acutangula*, but differs in having the posterior corners of the petiolar node rounded instead of angulate, and in its being much more attenuate when viewed from above.

The apical portion of the mandibles are distinctly shorter than in *conigera* and in all of the specimens before are edentate.

All of the Fijian species excepting *foveopunctata* have one type of punctation, the head is covered with strong almost foveolate punctures, the bottoms of which are rugulose. The front of the head outward from the carinae is rugulose and sometimes striate. The

thorax and abdomen have regular and widely separated punctures smooth at bottom and less coarse than those of head, though moderately strong. *Type*.— M. C. Z. 8,692.

Key to the Fijian Species of Lobopelta.

Head nearly as broad as long. Clypeus moderately projecting and rather broadly rounded at middle. Petiole in profile as high as long. 1

1. Thorax and petiole coarsely sculptured. *foveopunctata* Mann

Thorax and petiole smooth and shining. *letitiae* Mann

Head much longer than broad. Clypeus longer, pointed, or narrowly rounded at middle. Petiole in profile distinctly longer than high. 2

2. Petiole from above narrowed and appearing pedunculate in front. Antennal scapes surpassing occipital corners by three eighths their length, funicular joints very long and slender. Sculpture finer. Length 8 mm. *vitiensis* Mann

Petiole from above narrowed in front, but without attenuate peduncle-like portion. Antennal scapes shorter, funicular joints shorter and thicker. Sculpture coarser. Length 4-5.5 mm. 3

3. Head subquadrate, not broader in front than behind. Eyes small, distinctly more than twice their longitudinal diameter from base of mandibles. Length 3.75 mm. *humiliata* Mann

Head broader in front than behind. Eyes larger, their distance from base of mandibles much less than twice their longitudinal diameter. Length 4.5-5 mm. 4

4. Head nearly twice as long as broad. Distance from eyes to base of mandibles distinctly greater than the longitudinal diameter of eye. Smaller, length 4.5 mm., more slender species. Mesoëpinotum with transverse impression. *navia* Mann

Head shorter. Distance from eyes to base of mandibles about equal to longitudinal diameter of eye. Mesoëpinotum not impressed. Larger, length 5.55 mm., more robust species. *fugax* Mann

18. *ANOCHETUS GRAEFFEI* Mayr.

Verh. Zool. bot. gesellsch. Wien, 1870, 20, p. 961, ♀.

Vitu Levu: Waiyanitu. Vanua Levu: Lasema, Suene. Taviuni: Somo Somo. Kadavu: Vanua Ava, Buke Levu.

Nests in small colonies beneath stones.

19. ODONTOMACHUS ANGULATUS Mayr. Fig. 11.

Sitz. Akad. wiss. Wien, 1866, 53, p. 500, pl. 1, fig. 10, ♀.

Female (decalated). Length 13 mm.

Very similar to the worker, but with the usual sexual differences. The gaster is enlarged to an extent unusual in the genus. The ocelli are far apart as in the female of *hastatus*, the two lateral ones small and the median large.

Viti Levu: Nadarivatu.

This species was described by Mayr from workers collected on Ovalau. I searched for it unsuccessfully on that island as well as in numerous other localities, finally coming across it in the canyons that cut into the dry hillsides on the north slope of the mountains at Nadarivatu. A stream runs through each of these canyons and *angulatus* was always near these, sometimes foraging in situations constantly wet by spray from the waterfalls. It forages during the day time.

The nest is in the ground, sometimes beneath a stone, but more often about the roots of trees.

20. ODONTOMACHUS HAEMATODA (Linné).

Formica haematoda Linné, Syst. nat. ed. 10, 1758, 1, p. 582, ♀.

Distributed commonly everywhere throughout the islands, even to Ono i Lau, the end of the Lau Archipelago.

21. PHEIDOLE ONIFERA, sp. nov. Fig. 12.

Soldier. Length 2.75 mm.

Head a little longer than broad, sides nearly straight, occipital angles broadly rounded, border rather broadly and not deeply concave; vertex not transversely impressed but with a narrow longitudinal sinus extended on the front almost to the frontal area. Mandibles elongate, obtusely bidentate apically. Clypeus very shallowly concave at middle of anterior border. Frontal carinae little divergent, extending beyond tips of scapes and bordering broad, shallow scrobes. Antennal scapes extending nearly two thirds the distance to occipital corners; funicular joints 2-8 little broader than long; club nearly as long as the remainder of funiculus, with the terminal joint as

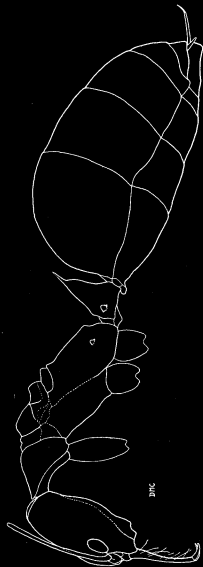


FIG. 11.—*Odontomachus ungulatus* Mayr. Female.

long as the other two together. Eyes situated at anterior third of sides of head. Pronotum produced at sides into prominent, subacute angles. Promesonotal impression feeble. Mesonotum elevated at sides as short subconical projections. Base and declivity of epinotum equal; spines acute, straight, about as long as their distance apart at base. Petiole short, node in profile thickly cuneiform, its dorsal surface straight. Postpetiole twice as broad as petiole, twice as broad as long, rounded at sides.

Moderately shining. Mandibles finely punctate. Head with fine, longitudinal separated striae, which become indistinct behind, the spaces between and the occipital region rugulose punctate. Thorax, epinotum, petiole, and postpetiole densely, though shallowly, punctate. Gaster finely punctate.

Erect, very fine pilosity moderately abundant on head and body, mandibles, and appendages.

Yellow-brown; gaster and a pair of blotches on front fuscous.



FIG. 12.—*Pheidole onifera* Mann. Soldier.

Worker. Length 1.5 mm.

Head a little longer than broad, narrowed in front and behind, sides convex, posterior border distinctly concave. Mandibles 7-dentate. Anterior border of clypeus straight. Antennal scapes slightly surpassing occipital corners; funicular joints 2-8 transverse. Eyes situated at middle of sides of head. Pronotum with subangulate humeri; sides at middle elevated into short elevated angulate projections; margined behind. Mesonotum margined at sides, the margins terminating as angulate elevated projections, similar to those of pronotum. Base of epinotum flat, a little longer than declivity; spines erect, divergent, acute, a little longer than their distance apart at base. Petiolar node in profile triangular, upper margin straight. Postpetiole little broader than petiole, slightly broader than long and rounded laterally.

Subopaque. Head finely striolate in front, densely punctate at sides and on occiput. Thorax sparsely and irregularly striate longitudinally and finely punctate. Epinotum densely punctate. Nodes and gaster shining and very finely punctate.

Fine erect hairs moderately abundant on head, body, and appendages.

Yellowish brown throughout.

Viti Levu: Nadarivatu. (Type-locality). Ovalau: Levuka. Tavuni: Somo Somo.

A distinct species, characterized by the structure of the mesonotum in the soldier and by the elevated triangular projections at sides of the pro- and mesonotum in worker.

The colonies found were small ones, situated beneath stones. *Type*. — M. C. Z. 8,694.

22. PHEIDOLE UMBONATA Mayr.

Sitz. Akad. wiss. Wien, 1866, **53**, p. 510, ♀ ♂ (excl. ♀ 2). Verh. Zool. bot. gesellsch. Wien, 1870, **20**, p. 977, 978, 2.

Soldier. Length 2.10–2.50 mm.

Head a little longer than broad, as broad in front as behind, sides moderately convex, occipital border broadly and, at middle, rather deeply excised, vertex not transversely impressed. Mandibles with a tooth at the angle between base and blade, bidentate at tip. Clypeus flat in front, its anterior border nearly straight. Antennal scapes extending a little less than half the distance to occipital corners; first funicular joint as long as the next three joints together, joints 2–8 a little broader than long; club shorter than remainder of funiculus, its terminal joint longer than the other two together. Eyes little convex, situated at anterior fourth of head. Pronotum much broader than long, sides submargined and broadly rounded at tips. Promesonotal suture barely distinct. Mesonotum flat. Epinotum shallowly concave between the spines, the base about as long as declivity; spines triangular and acute, shorter than their distance apart at base. Petiole rather short, node in profile higher than long; above, concave at middle with the sides subconical. Postpetiole a little less than twice as broad as petiole, broader than long, broadest in front of middle, with nearly straight sides.

Moderately shining throughout. Mandibles with fine and regular setigerous punctures. Head regularly, longitudinally striate, the striae becoming obsolete on vertex; occiput smooth. Pro- and mesonotum smooth. Epinotum coarsely, though shallowly reticulate. Petiole, postpetiole, and gaster smooth.

Fine, erect hairs moderately abundant on head, body, and appendages.

Brownish yellow, gaster pale fuscous.

Worker. Length 1.25–1.50 mm.

Head slightly longer than broad, sides feebly convex, posterior corners broadly rounded, occipital border very shallowly concave at middle. Mandibles with fine elongate triangulate teeth. Clypeus straight at anterior border. Antennal scapes slightly surpassing occipital corners; funicular joints 2–8 about as long as broad. Eyes large, situated at anterior third of sides of head. Pronotum evenly rounded above and at sides. Promesonotal suture very

feeble. Epinotal spines triangular and acute, shorter than their distance apart at base. Petiolar node subcuneiform, narrowly rounded above. Postpetiole slightly broader than petiole.

Shining. Cheeks longitudinally striate; head regularly and sparsely punctate; epinotum punctate as in soldier. The rest smooth.

Pilosity long, erect and rather sparsely distributed on head, body, and appendages.

Brownish yellow. Head and gaster a little darker than the rest.

Female. Length 4 mm.

Head a little broader than long; occipital border broadly and very shallowly concave. Epinotal spines triangular, not acute, their width at base greater than their length. Petiole shorter than in soldier, and less excised above.

Head longitudinally striate. Epinotal base and the posterior slope of petiolar node punctate, the remainder smooth and shining.

Pilosity and color as in soldier except that the mesothorax is dark like the gaster. Wings hyaline with veins pale brownish yellow.

Viti Levu: Nausori. Vanua Levu: Suene, Lasema, Wainunu. Taviuni: Somo Somo. Lau: Munia, Tuvuca. Vanua Mbalavu: Loma Loma.

A common widespread species, nesting beneath stones. It belongs to the *flacens* group and is characterized by the short epinotal spines, the prominently produced sides of the pronotum, and the flat mesonotum.

23. *PHEIDOLE VATU*, sp. nov. Fig. 13b.

Soldier. Length 2.75-3 mm.

Head one fourth longer than broad, slightly narrowed in front, anterior two thirds of sides straight, occipital angles moderately rounded, occipital angles deeply and narrowly excised at middle, vertex strongly, transversely impressed. Mandibles stout, their blades very indistinctly and obtusely dentate at base and with two stout teeth apically, and sparse, minute teeth between. Clypeus flat, rather strongly concave at middle of anterior border. Antennal scapes extending a little less than half the distance to occipital corners; first funicular joint longer than the three following joints together, joints 2-8 slightly broader than long; terminal joint longer than the two preceding joints together. Eyes small and convex, situated in front of anterior third of sides. Thorax a little more than half as broad as head. Promesonotum in profile strongly convex. Sides of pronotum produced and obtusely angulate. Promesonotal impression distinct. Epinotum with subequal base and declivity, the spines slender, straight, divergent, a little shorter than their distance apart at base. Petiolar node three times as broad as long, excised at

middle. Postpetiole more than twice as broad as petiole, with strong elongate, curved projections at sides.

Mandibles finely punctate and shining. Head subopaque, front and sides longitudinally striate, scrobes cribrately punctate, vertex and occiput with fine reticulate striae and the interspaces rugulose-punctate. Thorax feebly shining, indistinctly transversely striated. Epinotum and postpetiole finely punctate. First gastric segment at base densely and finely punctate and longitudinally striate. Gaster and legs shining.

Fine, erect white hairs moderately abundant on head, body, and appendages.

Head brownish red, thorax, abdomen, and femora dark brown to black, tibiae and tarsi brownish yellow.



FIG. 13.—*a*. *Pheidole knowlesi* Mann. Soldier. Front view of head. *b*. *Pheidole vatu* Mann. Soldier. Front view of head.

Worker. Length 1.50 mm.

Head a little longer than broad, as broad in front as behind, sides convex, posterior border very feebly concave. Mandibles with six unequal teeth. Clypeus straight at middle of anterior border. Antennal scapes surpassing occipital corners by less than their diameter at tips; funicular joints 2-8 transverse; club as long as remainder of funiculus, with the terminal joint as long as the other two together. Pronotum rounded at sides. Promesonotal suture not discernible. Epinotal spines divergent, nearly straight, a little shorter than their distance apart at base. Petiolar node subcuneiform, faintly impressed at middle. Postpetiole lower than petiole, less than twice as broad as long and rounded at sides.

Head opaque, the rest feebly shining. Mandibles finely striolate. Head coarsely, densely, and regularly punctate and with feeble striae on front parallel to frontal carinae. Thorax, petiole, and postpetiole superficially punctate.

Pilosity rather sparsely distributed on head, body, and appendages.

Dark reddish brown to black, head paler than the rest; mandibles, funiculi, and legs yellow-brown.

Viti Levu: Nadarivatu.

Type.—M. C. Z. 8,695.

24. *PHEIDOLE WILSONI*, sp. nov.

Soldier. Length 2.75 mm.

Head one fifth longer than broad, slightly narrowed in front, sides nearly straight, occipital corners broadly rounded, border narrowly and rather deeply excised at middle; vertex transversely impressed. Mandibles bidentate at tip and with an obtuse tooth at base of blades. Clypeus flat, very feebly concave at middle of anterior border. Antennal scapes extending distinctly more than half the distance to occipital corners; first funicular joint nearly as long as the three following joints together, joints 2-8 a little longer than broad; club slender, with the terminal joint as long as the two preceding joints together. Antennal scrobes broad and shallow, bordered inwardly by a narrow carina. Eyes small, little convex, situated at anterior third of sides of head. Thorax strongly arched in profile; sides of pronotum bluntly conical at middle. Base of epinotum concave at middle, roundly margined at sides, equal in length to the declivity. Epinotal spines as long as their distance apart at base, their tips rather blunt; erect, moderately divergent and extending slightly backward. Petiole elongate, the node in profile higher than long and narrowly rounded above, dorsal surface evenly rounded. Postpetiole two and one half times as broad as petiole; in profile, highest and rather narrowly rounded in front of middle, sides produced as cones, which are nearly straight and less than half as long as the width of node.

Shining. Mandibles sparsely and very finely punctate. Front with longitudinal rugae, which become finer and reticulate on vertex. Cheeks with finer and more dense rugae. Vertex rugulose. Occiput very reticulately rugulose and with sparse, coarse punctures. Pronotum with irregular, transverse striae. Epinotum and anterior and posterior faces of petiolar node and postpetiole shallowly punctate. Gaster finely and regularly punctate.

Erect hairs long and silky, moderately abundant on head, body, and appendages.

Color very dark brown; anterior portion of head, the mandibles and appendages brownish red.

Worker. Length 1.50-1.75 mm.

Head a little longer than broad, as broad in front as behind, sides feebly convex, posterior border nearly straight. Mandibles with seven fine teeth. Clypeus strongly convex basally, anterior border distinctly, though shallowly concave at middle. Antennal scapes surpassing occipital corners by a little less than one third their length; funicular joints 2-8 slightly longer than broad. Promesonotum rounded in profile, the sides broadly and subangulately produced in front of middle. Base of epinotum flat, much longer than declivity; spines longer than their distance apart at base, erect and moderately divergent. Petiolar node elevated and narrowly rounded above. Postpetiole one and

one half times as broad as petiole, sides in front of middle with poorly developed angulate processes.

Shining. Mandibles finely punctate. Head coarsely cribrately punctate and epinotum shallowly so. Thorax similarly punctate except for a discal surface which lacks the punctures and bears fine transverse striae.

Pilosity as in soldier.

Color dark brown; appendages pale reddish brown.

Kadavu: Vanua Ava.

This species is near *ratu*. The soldier differs in its broader head, more narrowly excised behind, the longer antennal scapes, and in the much shorter lateral projections on the postpetiole. The worker of *wilsoni* has longer antennal scapes and the sculpture is stronger than in the same phase of *ratu*. *Type*.—M. C. Z. S,696.

The name is in honor of Mr. T. E. Wilson of Vanua Ava.

25. PHEIDOLE CALDWELLI, sp. nov. Fig. 14.

Soldier. Length 4.50–5 mm.

Head a little longer than broad, sides moderately convex, occipital corners broadly rounded, posterior border narrowly and deeply excised; vertex transversely impressed. Mandibles bluntly toothed at base of blades, and with two coarse apical teeth. Clypeus concave, the anterior border slightly concave at middle. Frontal carinae feebly elevated, extending to tips of scapes. Scapes extending a little more than half the distance to occipital corners, narrow and strongly arcuate basally, thickened at apical third; funiculus slender, first joint as long as the three following joints together, joints 2–8 as long or slightly longer than broad; club slender, with the terminal joint as long as the other two together. Eyes small, convex, situated at anterior third of sides of head. Pro- and mesonotum strongly convex in profile; suture well defined; pronotum angulately produced at sides. Mesoöpinotal impression strong. Base of epinotum as long as the declivity, concave between the spines, which are longer than the base, thick, pointed at tips, extending upward and backward and slightly divergent. Petiole rather thick, the node in profile about as high as long, with the dorsal surface feebly impressed at middle. Postpetiole twice as broad as petiole, broader than long, broadest and subangulately produced in front of middle.

Gaster, legs, and mandibles shining, the rest feebly shining. Mandibles coarsely punctate. Cheeks and front longitudinally striate; vertex and occiput rugose; sides densely punctate and with fine striae. Pronotum transversely rugose-striate. Mesonotum, petiole, and postpetiole strongly, and the epinotum shallowly, densely punctate. Basal third of first gastric segment finely and very densely longitudinally striate-punctate.

Long erect hairs rather sparsely distributed on head and thorax, more abundant on gaster. Finer and shorter hairs on gaster, mandibles, and appendages.

Dark reddish brown to black, mandibles and legs lighter.

Worker. Length 2 mm.

Head a little longer than broad, sides moderately convex, posterior corners broadly rounded, posterior border very feebly concave at middle. Mandibles with eight unequal triangular teeth. Clypeus flat basally, finely carinate at middle of anterior half, anterior border concave at middle. Frontal carinae little elevated, rounded, subparallel, extending to about half the distance between eyes and occipital border. Eyes situated slightly in front of middle of sides of head. Antennal scapes thickened at anterior fourth, then narrowed to apex, surpassing occipital corners by one fourth. Pronotum moderately convex above, gibbous laterally at middle. Promesonotal impression weak.



FIG. 14.—*Pheidole caldwelli* Mann. Soldier.

Base of epinotum rather flat, twice as long as declivity; spines stout, two thirds as long as the base of epinotum, moderately divergent and rather strongly curved. Petiolar node from above about twice as long as broad, sides rounded. Postpetiole twice as broad as petiole, broadest behind, with evenly rounded sides.

Gaster, legs, and mandibles shining, the remainder opaque. Mandibles very sparsely punctate. Cheeks and front of head with weak striae, head, thorax, petiole, postpetiole, spines, antennal scapes, and legs densely punctate; gaster very finely and densely punctate at base of first segment.

Erect, stiff, hairs rather sparsely distributed on head, body, and appendages.

Dark reddish brown; mandibles and appendages lighter.

Female. Length 5 mm.

Head very slightly broader than long. Antennal scrobes better defined than in the soldier. Epinotal spines longer than the declivity, stout basally, pointed apically.

Front and sides of head longitudinally striate; scrobes densely punctate, Mesothorax longitudinally striate. Scutellum rugose. Epinotum, petiole,

and postpetiole irregularly, transversely striate. Basal third of first gastric segment finely striate and densely punctate between the striae.

Color and pilosity as in soldier.

Viti Levu: Nadarivatu.

Very common in, and apparently restricted in distribution to, the mountains about Nadarivatu, where numerous colonies were found beneath stones and logs. Near *P. vatu* Mann, but much larger, with the sides of the postpetiole merely subangulate and not extended as spinose processes. *Type*.—M. C. Z. 8,697.

26. PHEIDOLE OCEANICA Mayr.

Sitz. Akad. wiss. Wien, 1866, 53, p. 510, ♀, 2.

Viti Levu: Nadarivatu, Nausori, Nasoqo. Vanua Levu: Suene, Labasa, Lasema. Ovalau: Levuka. Taviuni: Somo Somo. Kadavu: Vunisca. Lau: Tuvuca. Vanua Mbalava: Loma Loma.

27. PHEIDOLE KNOWLESI, sp. nov. Fig. 13a.

Soldier. Length 3 mm.

Head one fourth longer than broad, narrowed in front, sides at anterior two thirds nearly straight, occipital corners broadly rounded, border narrowly and moderately strongly concave at middle, vertex impressed at middle, rather strongly. Mandibles rather long, their blades with three triangular teeth basally, two larger ones at apex and a series of small denticles between. Clypeus flat, very feebly concave at middle of anterior border. Frontal carinae feebly elevated, bordering shallow scrobes that extend slightly beyond tips of scapes. Scape extending about five eighths the distance to occipital corners; first funicular joint nearly as long as the three following joints together; joints 2-8 slightly longer than broad, club moderately large, a little shorter than remainder of funiculus, terminal joint nearly as long as the other two together. Eyes small, little convex, situated at anterior third of sides of head. Pronotum notal impression distinct. Sides of pronotum angulately produced; humeri rounded. Mesonotum rather flat above, declivous behind and subangulate between the two surfaces. Base of epinotum about as long as declivity; spines erect, triangular, as long as their distance apart at base. Petiole short, node in profile bluntly triangular; flat above, with the sides subangulate. Postpetiole a little lower than petiole, twice as broad as long, with sides conically produced at middle. Legs rather stout.

Shining, the thorax less strongly than head and gaster. Mandibles finely

punctate. Cheeks and front with regular, parallel striae which terminate at the vertical impression. Vertex and occiput finely and sparsely punctate. Thorax and epinotum very superficially, transversely striate. Petiole, postpetiole, and gaster very finely and sparsely punctate.

Pilosity very long and unusually fine, rather sparsely distributed on head, body, and appendages.

Reddish brown, front blotched with dark fuscous; legs lighter, with basal half of femora infuscated.

Worker. Length 1.75 mm.

Head slightly longer than broad, sides feebly convex, occipital corners broadly rounded, border nearly straight. Mandibles with 8-9 unequal teeth. Clypeus with nearly straight anterior border. Antennal scapes surpassing occipital corners by about one third their length; first funicular joint as long as the three following joints together, joints 2-8 a little longer than broad; club well developed, nearly as long as the remainder of funiculus, terminal joint a little longer than the other two together. Eyes situated in front of middle of sides. Promesothorax without distinct suture, sides subangulate at middle, humeri narrowly rounded. Base of epinotum longer than declivity; spines triangular, about as long as their distance apart at base. Petiolar node narrowly rounded above, higher than the postpetiole which is broader than long and subangulate at sides.

Shining. Cheeks striate; sides of head cribrate punctate; sides of front with very sparse longitudinal striae parallel to frontal carinae. Mesonotum with very feeble transverse striae, the remainder sparsely and very finely punctate.

Pilosity similar to that of soldier.

Color dark reddish brown.

Female. Length 5.75 mm.

Head slightly broader than long, narrowed in front. Epinotal spines shorter and thicker than those of soldier. Petiole shorter and thicker than in soldier, concave above, at middle with prominently rounded sides. Postpetiole at sides strongly produced in subspiniform process which are much longer than thick.

Head strongly and regularly striate. Posterior two thirds of mesonotum delicately striate longitudinally.

Wings clear, veins and stigma fuscous.

Pilosity as in soldier.

Color dark brown to black.

Vanua Levu: Suene.

In habitus and in sculpture resembling *megacephala*, but the head of the soldier is longer and much less convex at sides, the mandibular

blades are distinctly tridentate basally. In the worker of *knowlesi* the head of the worker is rather strongly punctate at the sides, instead of smooth as in *megacephala*. *Type*.—M. C. Z. 8,698.

27a. *PHEIDOLE KNOWLESI* Mann, subsp. *EXTENSA*, subsp. nov.

Soldier. Length 3 mm.

Differing from typical *knowlesi* only in having the frontal striae extending beyond the transverse vertical impression and on to the vertex, with the interspaces distinctly though very finely punctate and the head more uniformly fuscous instead of reddish brown and lacking the darker blotches on the front.

Worker. Length 1.75 mm.

Very similar to that of *knowlesi*, but with the head between the frontal carinae finely and sparsely striolate longitudinally, and rather sparsely punctate.

Viti Levu: Nadarivatu (Type-locality), Nasoqo. Vanua Levu: Wainunu.

A harvesting species, very common beneath stones. It is the host of several species of clavigerid beetles.

The differences in striation between this and the preceding form, though slight, are constant in a large series before me. *Type*.—M. C. Z. 8,699.

28. *PHEIDOLE* (*ELECTROPHEIDOLE*, subgen. nov.) *ROOSEVELTI*,
sp. nov. Fig. 15.

Soldier. Length 4.75–6 mm.

Head one fourth longer than broad, slightly broadened behind, sides nearly straight, posterior corners prominent and rounded, border deeply excised, vertex broadly impressed transversely. Mandibles thick, their blades with a small triangular tooth basally, and two very stout teeth apically. Clypeus impressed in front of middle, then elevated, with the anterior border concave at middle. Frontal carinae no stronger than the other carinae on the front and bordering very poorly defined scrobes. Antennal scapes extending a little more than half the distance to occipital corners, slender and arcuate basally, thickened at apical third; funicular joints 2–8 about twice as long as broad, club very slender, much shorter than remainder of funiculus, with the first two joints subequal and together much longer than the terminal. Eyes small and moderately convex, situated at sides of head in front of anterior

third. Thorax robust, humeri obtusely angulate, gibbous at middle of sides. Mesothorax margined at sides and posteriorly by a strong elevated ridge, which extends upward and backward and is strongly excised at middle. Mesoepinotal impression strong. Base of epinotum concave, a little shorter than the declivity; spines as long as declivity, straight, moderately divergent, thick to apical fifth where they are obliquely truncate, with the tip acuminate. Petiole elongate, gradually enlarging from base to the node, which, in profile is twice as high as long, and very strongly notched above at middle. Postpetiole more than twice as broad as petiole, broadest at middle, narrowed at sides, with the latter produced as horizontal, lamellate, broad, and bluntly angulate teeth, dorsal surface narrowly rounded at middle. Gaster broad and oval. Legs rather slender.



FIG. 15.—*Pheidole* (*Electropheidole*) *roosevelti* Mann. Worker.

Head (excepting occiput), thorax, petiole, and postpetiole moderately shining, occiput, mandibles, and legs strongly shining. Mandibles coarsely striate and punctate. Head with moderately strong carinae, which are irregularly longitudinal on front and sides and reticulate and rugose on vertex and occiput, with the intervening spaces on the latter regions rugose; scrobes reticulately rugose. Thorax coarsely reticulate-rugose. Epinotum smooth. Petiole finely and postpetiole more coarsely rugose-striate. First gastric segment regularly and rather coarsely punctate.

Fine, long, erect hairs abundant on head, thorax, and abdomen, sparser on appendages.

Dark reddish brown to black, gaster darkest, legs lighter.

Soldier. Length 2.50–2.75 mm.

Head longer than broad, sides feebly convex, sides behind eyes, occipital corners and border distinctly margined, the border narrowly concave at middle. Mandibles elongate, their blades 7-dentate, the two apical teeth long and acute, the others small, irregular, and widely separated. Clypeus convex, anterior border nearly straight. Frontal carinae short, not extending to opposite anterior border of eyes. Antennae slender, their scapes surpassing occipital corners by more than one third their length; first funicular joint slightly

shorter than the second and third together, joints 2-8 more than twice as long as broad; club very slender, a little shorter than remainder of funiculus, with the first joint longer than the second and the terminal shorter than the other two together. Eyes larger and convex, situated in front of middle of sides of head. Pronotal humeri obtusely angulate. Mesonotum projecting behind horizontally as a broad, lamellate process, concave at middle of tip. Base of epinotum sloping, a little longer than declivity. Epinotal spines long, erect, bifurcate above, with the anterior projection short and angular and the posterior elongate and acute. Petiole long and slender; node narrow, cuneiform above, angulate at sides and concave at middle. Postpetiole much broader than petiole, broadest in front of middle and narrowed and sloping behind. Legs long, femora stout.

Head and thorax feebly, the rest strongly, shining. Mandibles with sparse punctures. Head rugosely punctate, with striae which are irregularly longitudinal on front and vertex and reticulate on sides, and occiput. Thorax with broken irregular transverse ridges. Epinotum, petiole, postpetiole, gaster, and legs microscopically punctate.

Fine long hairs moderately abundant on head, body, and appendages.

Reddish brown to dark brown, with the gaster darker and appendages lighter.

Female. Length 6.75 mm.

Head slightly broader than long, broadest behind, with narrowly rounded occipital corners and concave border. Antennal scapes extending five sixths the distance to occipital corners. Epinotal spines strong, shorter than the base of epinotum, concavely oblique at tip. Petiolar node narrowed above and excised at middle.

Head rugosely punctate and longitudinally striate, the striae reticulate on sides and occiput. Mesothorax strongly and regularly striate longitudinally. Scutellum rugulose. Petiole and postpetiole transversely rugosely striate. Gaster regularly punctate.

Pilosity as in soldier.

Reddish brown; gaster darker.

Viti Levu: Nadarivatu (Type-locality). Ovalau: Levuka.

Nests beneath stones and logs. The soldiers and workers are sluggish in their movements.

Named after the late Col. Theodore Roosevelt.

There is considerable variation in size and in the color of the soldiers, the heads of some being brick-red and in others almost black, but between the extremes in size and color are intermediate forms. I have based my description of the soldiers on one of the larger specimens. The smaller ones appear identical in structure and sculpture.

This species is very different from any described Pheidole in the

structure of the mesonotum. The structure of the epinotal spines in the worker recalls that in *P. cervicornis* Emery from New Guinea, though in that species they are more definitely bifurcate, the prothorax also bears similar spines and the mesothorax, instead of being lamellate, is bispinose. *P. roosevelti* may be considered as belonging to a subgenus (Electropheidole) characterized by the lamellate development of the mesothorax in the soldier and worker and by the elongate, bifurcate epinotal spines and the distinctly margined head of the worker.

29. PHEIDOLE (ELECTROPHEIDOLE) COLAËNSIS, sp. nov.

Soldier. Length 4.75 mm.

Head longer than broad, sides feebly convex, occipital angles rather narrowly rounded, border narrowly and deeply concave at middle, vertex moderately impressed transversely. Mandibles short and thick, edentate. Clypeus bluntly carinate at middle of basal half, anterior border concave at middle. Antennal scapes extending more than half the distance to occipital borders and contained in narrow, though distinct scrobes; first funicular joint longer than the second and third joints together, joints 2-8 longer than broad; club slender, the terminal joint much shorter than the other two together. Eyes small, moderately convex, situated at sides of anterior third of head; median ocellus well developed. Promesothorax robust, gibbous at middle of sides, humeri obtusely angulate. Mesothorax margined at sides and produced behind as a thick plate which is concave at middle. Epinotum with subequal base and declivity; spines coarse, longer than base and obliquely truncate at tips. Petiole long and slender, the node narrowly rounded above in profile, and concave at middle of dorsal border. Postpetiole more than twice as broad as petiole, broadest a little in front of middle and angulately produced at sides. Legs rather slender.

Shining. Mandibles coarsely and regularly punctate and very minutely and sparsely striolate. Sides and front of head with moderately coarse and regular striae; upper portion of vertex, sides behind eyes, and the occipital region punctate similarly to mandibles and strongly shining. Thorax (except the impressed portion of mesonotum) irregularly striate transversely. Gaster with rather broad and shallow punctures.

Fine, erect, and long pilosity moderately abundant throughout.

Dark reddish brown to black; gaster darkest.

Worker. Length 2.5 mm.

Head a little longer than broad, sides moderately convex, posterior corners broadly rounded, border convex except at middle where it is narrowly concave, sides and posterior border of occiput with a rounded, not very prominent

margin. Mandibles slender and pointed, with two large apical teeth and a series of 5-6 smaller teeth. Clypeus strongly convex basally, broadly rounded at anterior border. Antennae very slender, their scapes surpassing occipital corners by three eighths of their length; first funicular joint nearly as long as the three following joints together; joints 2-8 about twice as long as broad; club slender, the terminal joint shorter than the other two together. Eyes situated a little in front of middle of sides of head. Thorax elongate, little convex above. Mesonotum margined at sides and produced behind as a rather thick plate, concave above and excised at middle of tip. Epinotum with a pair of erect spines, longer than the base, bifurcate at tip, similar to those of *roosevelti*. Petiole elongate, the node in profile bluntly conical; from above, broader than long, with the dorsal border feebly concave. Postpetiole broader than petiole and a little broader than long; in profile about as long as high, evenly rounded above. Legs long, femora moderately enlarged.

Shining. Mandibles coarsely, sparsely punctate. Cheeks longitudinally striate; remainder of head and body with very sparse, broad, and shallow punctures.

Fine, long, erect hairs moderately abundant on head, body, and appendages. Color as in soldier.

Viti Levu: Nadarivatu.

Described from three soldiers and several workers from a small colony found beneath a stone. It is evidently much rarer than the preceding species, to which it is related, but readily distinguished, in the soldier phase, by the characters noted in the key to the species.

The worker of *colaënsis* has the head shorter and very narrowly concave behind, with the margin rounded. The occiput is sparsely punctate, the thorax is not striate and the lamellate process of the mesonotum is thicker and not strongly impressed before the tip.

Key to Fijian Species (Soldiers) of Pheidole.

1. Mesonotum produced behind as a short lamellate plate. Epinotal spines long and erect, obliquely truncate or bifurcate at tips. 2

Mesonotum of ordinary form. Epinotal spines not truncate or bifurcate at tips. 3

2. Mandibular blades concave, bidentate apically. Clypeus not carinate. Lamellate projection of mesothorax thin and strongly excised apically. Posterior portion of head rugose and reticulately striate. Ocelli absent.

roosevelti Mann

Mandibular blades convex edentate. Clypeus obtusely carinate basally.

Lamellate projection of mesothorax thick and shallowly concave at tip. Posterior portion of head sparsely punctate and shining. Median ocellus well developed. *colaënsis* Mann

3. Sides of mesonotum elevated as erect triangular spines. *onifera* Mann
Sides of mesonotum not elevated. 4
4. Small yellow brown species, (length 2.5 mm.); vertex not impressed transversely. Epinotal spines short. No antennal scrobes. *umbonata* Mayr
Larger species. Vertex laterally impressed. Epinotal spines longer.
Sides of head with antennal scrobes moderately or well developed. 5
5. Sides of postpetiole extended as curved spines, nearly half as long as the breadth of petiole. Clypeus strongly concave at anterior border. Antennal scapes extending distinctly less than half the distance to occipital corners. Base of first gastric segment strongly punctate and opaque. *vatu* Mann
Sides of petiole rounded or conical. Antennal scapes extending at least half the distance to occipital corners. 6
6. Base of first gastric segment densely striate punctate. Epinotum and petiole densely punctate and opaque. *caldwelli* Mann
Base of first gastric segment smooth. Epinotum and petiole not opaque. . . 7
7. Large brown species (length 4-4.5 mm.). Pronotum rounded at sides. *oceanica* Mayr
Smaller, darker species. Pronotum gibbous or connate at sides. 8
8. Occipital border narrowly excised at middle. Occipital region punctate. Color black. *wilsoni* Mann
Occipital border more broadly excised. Occipital region smooth. Color brown. 9
9. Striae on front of head terminating at vertical impression, leaving the vertex and occiput smooth and shining. Reddish brown; head with two fuscous blotches. *knowlesi* Mann
Striae on front extending onto the vertex. *knowlesi* subsp. *extensa* Mann

30. CARDIOCONDYLA NUDA (Mayr).

Leptothorax nudus Mayr, Sitz. Akad. wiss. Wien, 1866, **53**, p. 508, ♀.

Viti Levu: Saiaro. Vanua Levu: Lasema.

Lives in small colonies beneath stones or bark or in the ground.

31. MONOMORIUM PHARAONIS (Linné).

Formica pharonis Linné, Syst. nat., ed. 10, 1758, **1**, p. 580.

Viti Levu: Nausori.

Common in the cane-fields.

32. MONOMORIUM FLORICOLA (Jerdon).

Atta floricola Jerdon, Madras journ. litt. & sci., 1851, **17**, p. 107.

Viti Levu: Nadarivatu, Waiyanitu, Nausori. Vanua Levu: Lasema. Cicia. Ovalau: Levuka.

33. *MONOMORIUM* (*MONOMORIUM*) *VITIENSIS*, sp. nov.

Worker. Length 1.10–1.25 mm.

Head much longer than broad, as broad in front as behind, sides feebly convex, posterior border nearly straight. Mandibles with four triangular teeth. Clypeus very convex, rounded at anterior border. Antennae 12-jointed, slender, their scapes nearly attaining occipital corners; funicular joints 2–8 strongly transverse; club slender, much longer than remainder of funiculus, terminal joint longer than the other two together. Eyes small, situated in front of middle of sides of head. Promesothorax strongly convex. Mesoepinotal impression strong. Base of epinotum a little longer than the declivity, submargined laterally, concave apically, with the corners unarmed and obtusely angulate. Petiolar node in profile longer than the peduncle, narrowed and rounded above. Postpetiole twice as broad as long and as broad as the petiole; in profile, lower than petiole. Gaster elongate. Legs long and slender.

Very shining. Finely punctate throughout.

Hairs rather coarse and moderately abundant on head, body, and appendages. Pale yellow.

Taviuni: Somo Somo.

Described from a small series of workers found beneath stones on a dry hillside. *Type*.—M. C. Z. 8,700.

Monomorium talpa Emery from New Guinea and the Solomons is closely related but has the head distinctly shorter than in *vitiensis* and the antennal scapes extend beyond the occipital border.

34. *SOLENOPTIS* *CLEPTES* Mann, var. *VITIENSIS*, var. nov.

Worker. Length 1.25–1.50 mm.

Differing from typical *cleptes* of the Solomons in its larger size and paler coloration, being very light yellow in color with the first gastric segment strongly infuscated.

Viti Levu: Nasoqo (Type-locality), Tai Levu.

Several extensive colonies were found in small pockets in clay banks.

35. *PRISTOMYRMEX* *MANDIBULARIS*, sp. nov.

Worker. Length 2.50 mm.

Head about as long as broad, sides convex, posterior angles rounded, border broadly rounded. Basal edge of mandibles projecting at middle in the form

of a broad stout triangular tooth; blades 4-dentate, third tooth distinctly smaller than the others. Clypeus flat at middle, not carinate, margined laterally, anterior border with three triangular teeth and concave between them. Frontal area distinct, suboval, impressed. Frontal carinae fine, extending about two thirds the length of scapes. Scapes almost attaining occipital corners; first and second funicular joints longer than broad, joints 3-7 transverse, subequal; terminal joint longer than the two preceding joints together. Eyes convex, situated at sides of head slightly in front of middle. Thorax robust, flat above. Pro- and mesonotum with a strong short lateral constriction between, at the sides narrowly rounded and gibbous in appearance. Base of epinotum a little broader than long, subgibbous basally at sides, concave between the spines which are rather stout, as long as their distance apart at base, directed upward and backward, with a slight curve forward and moderately divergent; declivity nearly as long as base. Peduncle of petiole about as long as node; node higher than long, with concave anterior face narrowly rounding into dorsal surface; highest at anterior end, with dorsal and posterior surfaces broadly rounding into each other. Postpetiole two times as high as long, rounded dorsally; from above subquadrate, very slightly broader behind than in front and a little broader than long.

Shining. Mandibles finely punctate. Front and sides of head and the occiput with a few large and rather shallow punctures, the rest smooth.

Long and fine erect hairs very sparse on head, thorax, and abdomen; shorter and more abundant on appendages.

Brownish red to dark reddish brown.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu, Nasoqo. Taviuni: Somo Somo. Ovalau.

Nests beneath stones in small colonies. This is a characteristic species, distinct in the large strong tooth at middle of basal border of mandibles, the strongly dentate blade, the trilobed clypeus, with the median lobe triangular and nearly as large as those laterally. The surface of the thorax is uneven and might be described as broadly wrinkled, and the sculpture unusually fine and sparse. *Type*.—M. C. Z. 8,702.

POECILOMYRMA, gen. nov.

Near *Podomyrma* F. Smith.

Medium sized species, with moderately well-differentiated worker major and worker minor castes. Head of moderate size. Mandibles with broad, dentate blades. Clypeus moderately enlarged at middle, narrowed in front of antennal sockets, but not reduced to a mere ridge as in the *Tetramorii*. Antennal fossae broad, subcircular, not very deep. Frontal carinae feebly

elevated, not concealing the articulation of the antennae. Eyes well developed, of medium size and strongly convex. Antennae 12-jointed, the last three joints forming a rather narrow club which is much shorter than the remainder of the funiculus. Thorax narrower than the head, arcuate in profile, dorsum without distinct sutures or constrictions, humeral angles bearing triangular teeth, inferior angles of prothorax rounded. Declivity of epinotum with two pairs of spines, the basal pair more elongate than those above. Petiole strongly pedunculate, node well developed, elongate, without ventral tooth. Post-petiole much shorter than petiole and convex above. Gaster a little broader than head, oval, with well-developed sting. Legs rather stout, anterior tibia with pectinate spur, claws simple. Head and body, except the gaster, coarsely sculptured.

Differs from *Podomyrma* in the more pronounced dimorphism, the complete absence of thoracic sutures, the strongly armed epinotum, the well-developed petiolar node with its lack of inferior spine, and in the 12-jointed antennae.

Genotype.—*Poecilomyrma senirewae*, sp. nov.

36. *POECILOMYRMA SENIREWAE*, sp. nov. Fig. 16.

Worker major. Length 5 mm.

Head about as long as broad, as broad in front as behind, with convex sides, broadly posterior corners, and straight border. Mandibles rather thick, their blades with six stout triangular teeth, the anterior two of which are longer than the other and acuminate apically. Clypeus moderately convex at middle, very faintly concave at middle of anterior border. Frontal area large, triangular, and very distinct. Frontal carinae little elevated, parallel basally rather than divergent and extending up the front as crenulate carinae. Antennal scapes extending to occipital corners; first funicular joint longer than the second, but shorter than the second and third together, second joint distinctly longer than broad and longer than the third, joints 3-8 very slightly broader than long; last three joints forming a poorly differentiated club, with the first two about one and one third times as broad as long and together a little longer than the terminal joint. Eyes convex, situated at middle of sides of head. Thorax and epinotum without sutures above, broadest and with convex sides in the pronotal region, which is broader than long and separated from mesonotum by narrow lateral incisions; humeri produced into triangular teeth, which are flat above and a little broader at base than long; mesoepinotum broadest in front, gradually narrowing behind, rounding into the flattened declivous portion. Epinotal spines a little shorter than their distance apart at base, straight, thick, blunt apically, extending upward and backward and moderately divergent; basal spines much longer and curved, thick at apical

third, slender above. Peduncle of petiole from above three times as long as broad, rather strongly margined at sides, the margin roundedly elevated at middle; node elongate oval, nearly twice as long as broad; in profile, much longer than high, with the rather straight dorsal surface elevated behind, and longer than the anterior and a little shorter than the posterior surface. Postpetiole in profile longer than high; from above, about as long as broad, with convex sides, twice as broad at posterior border as in front. Gaster egg-shaped. Sting strong. Legs long and rather stout.

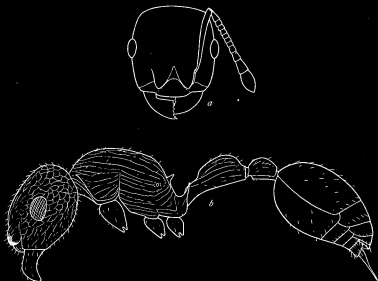


FIG. 16.—*Pöccilomyrma senirewae* Mann. Worker. a. Front view of head. b. Lateral view.

Shining. Mandibles coarsely striate and with scattered punctures. Clypeus with nine strong striae at middle. Head, thorax, epinotum (except tip of basal portion and the declivity) with very coarse, tortuous, irregularly reticulate costae. Postpetiole smooth above, with one or two punctures at the sides and basally with finer costae. Gaster with very regular and distinct piligerous punctures and a few broad and shallow punctures.

White, erect hairs abundant, on head, thorax, petiole, and postpetiole, longer and more regularly distributed on gaster, shorter on appendages.

Color rich reddish brown, mandibles, antennae, and legs darker, gaster black.

Worker minor. Length 4 mm.

Differing from the worker major in the following characters:—

The head is distinctly longer than broad with less convex sides. The eyes are larger; the antennae are shorter, their scapes extend but little more than half the distance from eyes to occipital corners.

The sculpture of the head is finer and composed of costae, which are sparse and irregularly longitudinal on vertex and front and tortuose behind, with the interspaces pitted and, toward the sides, rugulose. The costae of the thorax and epinotum are not tortuose, but rather irregularly longitudinal.

The head, petiole, and postpetiole and lower portions of thoracic pleurae are deep black.

Viti Levu: Nadarivatu.

Described from a series taken from a small colony that was nesting in a hollow twig of a recently felled kauri tree, and a couple of individuals found on leaves. It is evidently arboreal and may, like the species of *Podomyrma* that I found in the Solomons, be widely distributed though locally very hard to find.

Though the color of the worker major differs from that of the worker minor it is constant in individuals of either phase and correlated by the difference in the shape of the head and in sculpture.

This beautiful species is dedicated to Senirewa, a native princess.

36a. *POECILOMYRMA SENIREWAE* Mann, subsp. MYRMECODIAE,
subsp. nov.

Worker major. Length 5 mm.

A small series of workers found in a *Myrmecodia* bulb differ from typical *senirewae* in color, the head, postpetiole, and legs being black and the petiole infuscated at apical half, resembling the worker minor of *senirewae*, but differing in being as large as the worker major of that form and with a shorter head, more convex at sides.

Viti Levu: Mt. Victoria.

ARCHAEOMYRMEX, gen. nov.

Medium sized, short bodied species. Head large and broad, convex in profile, with the lateral inferior edges strongly margined. Cheeks swollen and rounded. Clypeus narrowed in front of antennal fossae, rather broad at middle, with trilobed anterior border. Mandibles large and thick. Frontal

carinae short and curved, their lobes moderately elevated and rounded. Eyes rather small, situated at anterior third of sides of head. Antennae stout, 12-jointed; club elongate, 3-jointed, shorter than remainder of funiculus. Thorax without sutures, narrower than head, broad in front narrowed behind, humeri prolonged and angulate, inferior angles broadly rounded, dorsal surface flat. Epinotum with two pairs of spines at sides of basal portion; declivity distinctly broader than base and flat, margined laterally. Petiole short and thick, subquadrate, with two small, rounded projections beneath. Postpetiole broad and short, strongly margined anteriorly. Gaster very short and broad, widest behind middle of basal segment. Sting not visible. Anterior tibiae with a large and very strongly pectinate spine; middle and posterior tibiae without spurs; claws simple. Hairs long and very fine. Sculpture coarse.

Genotype.—*Archaeomyrmex cacabau*, sp. nov.

A distinct genus, which may best be referred to a new tribe, Archaeomyrmecini, between the Myrmecini and the Meranoplini, distinguished by the shape of the head, with its margined lateral inferior border, lobed clypeus, absence of antennal scrobes, the stout, flat, triangular, sutureless thorax, the armature of epinotum, the broad, flat declivity, the short, thick, non-pedunculate petiole and the short and broad gaster.

37. *ARCHAEOMYRMEX CACABAU*, sp. nov. Fig. 17.

Worker. Length 3.75 mm.

Head broader than long, in profile convex, sides arcuate, posterior corners rounded and rather prominent; occipital border straight at middle and rounding at sides, with an elevated margin in front extending straight and transversely across the head. Mandibles stout, the basal border enlarged apically, blades armed with two large stout triangular teeth at apex and a series of seven broad, rather tuberculate teeth along the basal three fourths. Middle of clypeus in the form of a concave lobe, broader than long and margined at sides, the margins terminating as broadly truncate projections; anterior margin concave, with a large very blunt tooth at middle, the latter minutely excised at tip. Frontal carinae short, little elevated in front, curving and forming an acute posterior margin to the antennal fossae. Antennal scapes nearly attaining occipital angles, gradually thickened apically; first funicular joint thicker than the second and a little longer than broad, second joint much shorter than the third, joints 3-8 subequal in width and transverse, gradually increasing in length toward apex, joints 9-10 longer than broad and together distinctly shorter than the terminal joint. Eyes small (composed of about thirty distinct facets), situated at anterior third of sides of head. Thorax broad, without sutures, front of pronotum narrowly margined, concave at

middle, humeri projecting and bluntly angulate, surface flat, except for a very shallowly concave portion at the middle of anterior fourth, sides nearly straight, converging behind to basal portion of declivity which is less than half as broad as the front margin. Base of declivity with two pairs of triangular spines the anterior of which are less than half as long as their distance apart at base, the posterior pair a little longer and less widely separated; surface between the spines concave, strongly declivous to the declivity of epinotum which is broader than the base, twice as broad as long, flat above, with rather strong margins

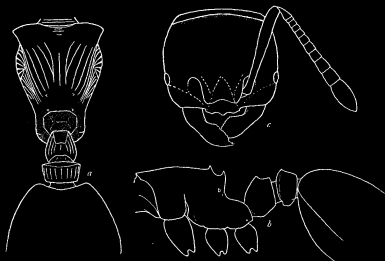


FIG. 17.—*Archaeomyrmex cacabau* Mann. a. Dorsal view of thorax and petiole. b. Lateral view of thorax and petiole. c. Front view of head.

laterally. Petiole from above subquadrate, a little longer than broad; in profile slightly longer than high, dorsal surface flat, a little longer than posterior face, bituberculate apically, posterior face with two tubercles, similar to those above but more approximated. Postpetiole twice as broad as long, broadest in front, with the anterior border straight and elevated into a strong margin; anterior surface flat. Gaster very short and broad, first segment only visible from above, concave at basal border, broadest at posterior third. Legs stout.

Shining. Mandibles punctate, middle portion of clypeus very smooth and shining. Head with regular costate striae which are straight on the front and evenly curving on the sides and vertex, posterior corners smooth and shining. Thorax above with a series of eleven stronger longitudinal costae, which termi-

nate before the front margin, leaving a transverse smooth area at anterior part of pronotum; pleurae costate similarly to dorsum. Epinotum smooth and shining. Petiole with very coarse and widely separated costae. Postpetiole more indistinctly costate. Gaster finely and sparsely punctate.

Erect hairs long and very fine and silky, abundant on head and body and equally long and abundant on antennae and legs.

Color intense black; mandibles and antennae brown, legs light brown.

Viti Levu: Nadarivatu.

Described from a unique worker found on the trunk of a tree, in some hollow portion of which it probably nests. The species is dedicated to King Cacabau.

It is a striking species, in habitus something like a small *Atopomyrmex*, but in structure entirely different. The sculpture strong in places and entirely lacking in other areas, the margin on the side portion of head, the four short spines on base of epinotum, the shape of the petiole, and the intense blackness of the tegument give it a characteristic appearance. The epinotal and petiolar structure are not unlike certain species of *Myrmecina*. The pilosity is unusually long and silky.

33a. *ROGERIA (ROGERIA) STIGMATICA* Emery, subsp. *SUBLEVINODIS* Emery.

Nova Caledonia. Zool., 1914, 1, p. 415, ♀.

Lau: Munia. Viti Levu: Waiyanitu, Nasoqo, Nadarivatu. Vanua Levu: Lasema, Labasa. Taviuni: Nagasau, Somo Somo. Kadavu: Vanua Ava. Ovalau: Levuka.

This species, described from New Caledonia and recorded also from Samoa by Emery, occurs commonly in Fiji. It nests beneath stones on logs where some humidity is present. When the formicary is opened, the disturbed ants behave in a curious manner, secreting from the anal glands viscid matter in elongate threads that closely resemble worms. These threads twist in a life-like manner and the first time I saw them I actually took them to be small worms. The ants themselves, motionless and of the same color as the earth, were at first not visible and the twisting, apparently crawling "worms" most conspicuous. One worker secreted a thread three quarters of an inch in length, and immediately afterward another, about a half inch long.

Rogeria stigmatica Emery from the Solomon Islands has the same habits, but not as well developed.

The subspecies *sublevinodis* is larger in size and darker in color than the typical *stigmatica* and has the entire dorsal surface of the petiolar node and postpetiole shining and only feebly punctate.

39. *ROGERIA (IROGERA) TORTUOSA*, sp. nov. Fig. 18.

Worker. Length 3.50 mm.

Head a little longer than broad, as broad in front as behind, sides moderately convex, posterior corners broadly rounded, occipital border feebly convex, mandibles with three triangular teeth apically and four blunt teeth behind.

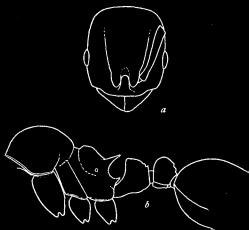


FIG. 18.—*Rogeria (Irogera) tortuosa* Mann. a. Front view of head. b. Lateral view of thorax and petiole.

Clypeus flat at middle, anterior border broadly rounded. Frontal carinae little broadened and flat in front, slightly divergent behind, nearly straight and extending to tips of scapes, bordering poorly defined scrobes. Antennal scapes extending four fifths the distance to occipital corners; first funicular joint as long as the second and third together, joints 2-8 strongly transverse, club slender, the terminal joint longer than the two preceding joints together. Eyes moderately convex, situated at sides of head slightly in front of middle. Promesonotum strongly convex above, the suture very indistinct; pronotum broader than long, humeri obtusely angulate, sides only slightly convex. Mesoepinotal impression very strong. Base of epinotum strongly convex, less than half as long as the declivity, which is concave and margined laterally;

spines broad basally, longer than their distance apart at base and divergent; inferior spines strong, elongate, triangular. Petiolar peduncle as long as the node; node in profile higher than long, highest in front, with dorsal and posterior surfaces evenly rounding into each other, anterior face declivous; from above a little broader than long and rounded at sides. Postpetiole from above slightly broader than long and a little broader in front than behind; in profile higher than long, strongly convex above.

Shining. Mandibles punctate. Clypeus smooth; front of head with a pair of costae as strong as the frontal carinae and parallel to them and between the two an equally strong, though interrupted costa; median portion with strong, though not broad, piligerous punctures, surface between eyes and antennal insertions with 9-10 oblique and somewhat arcuate, strong parallel costae; which continue in concentric curves on to the occiput. Thorax and gaster with sparse piligerous punctation. Petiole and postpetiole transversely costate, the costae in profile appearing as blunt teeth on the ventral borders. Antennae and legs punctate.

Pilosity of head and body abundant, very long and fine, that of appendages shorter and stiffer.

Dark red-brown to black, mandibles reddish, legs light reddish brown.

Ovalau: Levuka (Type-locality). Vanua Levu: Lasema, Suene.

A characteristic species, with strongly convex promesonotum, deeply impressed mesoepinotal impression, strong epinotal spines and shining tegument. *Type*.—M. C. Z. 8,703.

This species and two following well-defined subspecies form small colonies, nesting in damp earth beneath stones on logs. I frequently noticed workers foraging on the sides of mossy stones in ravines.

39a. *ROGERIA (IROGERA) TORTUOSA* Mann, subsp. *LEVIFRONS*, subsp. nov.

Worker. Length 3.50 mm.

Differing from the typical form in the absence of costae on the front inward to the frontal carinae and in the oblique lateral costae being much more feeble.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu, Vesari, Saiaro. Described from several workers. *Type*.—M. C. Z. 8,704.

39b. *ROGERIA (IROGERA) TORTUOSA* Mann, subsp. *POLITA*, subsp. nov.

Worker. Length 2.75-3 mm.

Differing from the typical *tortuosa* in the entire absence of striae on the occiput which is sparsely punctate and shining. The frontal carinae are more

feeble and on the front between them are several short and weak interrupted striae.

Viti Levu: Nadarivatu.

Type.—M. C. Z. 8,705.

40. *ROGERIA (IROGERA) STRIAELLA*, sp. nov. Fig. 19.

Worker. Length 2.10–2.25 mm.

Head subquadrate, distinctly longer than broad, sides nearly straight, posterior border straight. Mandibles with six acute triangular teeth, the three apical ones larger than the others. Clypeus with flat basal and apical halves separated by an obtuse angle, anterior border rounded. Frontal area strongly impressed but not sharply outlined. Frontal carinae nearly straight,



FIG. 19.—*Rogeria (Irogera) striatella* Mann. Worker. Lateral view of thorax and petiole.

moderately divergent, as long as the antennal scapes and bordering broad, well-defined scrobes. Antennal scapes thick, extending four fifths the distance to occipital corners; funicular joints 2–8 transverse, club slender, about as long as the remainder of funiculus, with the terminal joint longer than the other two together. Eyes large, feebly convex, situated at sides of head in front of middle. Pro- and mesothorax subglobose, suture barely discernible, humeri narrowly rounded. Mesoepinotal impression strong. Epinotum flat at base, then strongly concave and margined at sides, separated from declivity by a margined angle; declivity concave; spines about as long as their distance apart at base, strongly divergent, inferior spines short, triangular. Peduncle a little shorter than petiolar node, with a short, stout anteroventral tooth; node broader than long; in profile as long as high, highest in front.

Shining. Mandibles sparsely, very delicately striate and punctate. Front and vertex with fine, interrupted longitudinal striae, rugulose between; the striae on occiput reticulate and interspersed with large punctures; scrobe rugulose in front, nearly smooth behind. Thorax above at middle mostly smooth, but with scattered short, twisted rugulae, toward the sides rugulose. Epinotum, petiole, and postpetiole coarsely and irregularly striate transversely.

Gaster sparsely and rather coarsely punctate. Appendages with sparse punctures.

Long and fine hairs abundant on head, body, and appendages.

Black; mandibles and appendages reddish brown.

Male. Length 2.10 mm.

Head, excluding eyes, a little longer than broad, narrowed and rounded behind. Mandibles moderately well developed. Clypeus convex, anterior border very feebly rounded. Eyes large, a little less than half as long as head. Antennae 13-jointed, scapes less than half as long as head and rather thick, second funicular joint shorter than the first, as long as the third, and more than twice as long as broad, joints 4-11 gradually increasing in length, terminal joint slender, about as long as the two preceding joints together. Mesothorax with strong Mayrian and parapsidal furrows. Scutellum convex, a little broader than long, strongly declivous behind. Base of epinotum longer than the declivity, surface flat. Petiolar node evenly rounded above, from above, subcircular. Postpetiole subquadrate, broader than long; in profile rounded above. Gaster elongate. Genitalia small.

Moderately shining. Head, thorax, petiole, and postpetiole punctate, gaster more finely so.

Fine, semierect pilosity abundant on head, body and appendages.

Reddish brown, appendages lighter; wings hyaline, with pale veins and stigma.

Kadavu: Vanua Ava (Type-locality), Buke Levu. Viti Levu: Nasoqo.

Distinguished by the elongate head, with its delicate striation, and the large epinotal spines. Only one worker was found on Viti Levu but the species is abundant in parts of Kadavu, nesting beneath stones in small colonies. *Type*.—M. C. Z. 8,706.

41. *ROGERIA (IROGERA) RUGOSA*, sp. nov. Fig. 20.

Worker. Length 2.50-3.00 mm.

Head barely broader than long, sides convex, posterior angles broadly rounded, border nearly straight. Mandibles with three strong teeth on apical half and four small teeth on basal half. Clypeus rather strongly rounded at anterior border. Antennal scapes extending nearly four fifths the distance to occipital corners; first funicular joint longer than the second and third together; joints 2-8 strongly transverse; funicular joint much longer than the two preceding joints together. Eyes situated in front of middle of sides of head. Pronotum little convex at middle, humeri rounded. Mesoepinotal

impression strong. Base of epinotum concave, strongly margined at sides and in front; spines strong, as long as the base and much longer than the declivity, straight, divergent; inferior spines elongate and slightly curving upward. Petiolar node longer than peduncle, anterior face abrupt, dorsal surface long and sloping; from above, subquadrate, longer than broad, gibbous in front at middle and depressed behind, the depression crescent-shaped and strongly margined behind. Postpetiole broader than petiole, a little broader than long and narrowed posteriorly.



FIG. 20.—*Rogeria (Irogera) rugosa* Mann. Worker. Lateral view of thorax and petiole.

Head and thorax feebly, gaster strongly shining. Mandibles shining, finely punctate and, at basal half with delicate striae. Front and vertex with strong, irregular, longitudinal striae, the surface between the striae rugulose; striae of sides, scrobes, and occiput irregular, subconcentric. Pro- and mesonotum rugulose, with irregular, interrupted, longitudinal striae. Epinotum finely and superficially rugulose and shining. Petiole and postpetiole irregularly and coarsely costate, the costae on the postpetiole reticulate and enclosing foveolate pits. Gaster with fine and regular punctation.

Long and fine erect hairs abundant on body, especially the gaster. Hairs on appendages shorter and semierect.

Black, mandibles red, appendages yellowish brown.

Viti Levu: Nadarivatu.

Near *striatella* but larger and more coarsely sculptured, without well-defined antennal scrobes and with the inferior epinotal spines long and pointed, in *striatella* these are short and more rounded apically. Type.—M. C. Z. 8,707.

The colonies are small and live beneath stones or in the ground. The workers are very slow-moving.

Key to Melanesian Species of *Rogeria*.

1. Epinotal spines weak, shorter than their distance apart at base. Mesoe-pinotal suture feebly impressed.....2
- Epinotal spines large, longer than their distance apart at base. Mesoe-pinotal impression deep and wide.....5

2. Base of epinotum smooth and shining, inferior angles extended as short blunt teeth. Sculpture of pro- and mesonotum consisting of coarse, separated punctures. Moderately shining; color reddish.

(Solomon Islands) *epinotalis* Mann

Base of epinotum uniformly punctate and opaque; inferior angles rounded. Sculpture of pro- and mesonotum consisting of punctures and coarse striae. Opaque; color darker.....3

3. Base of first gastric segment not strigate-punctate.....4

4. Petiole and postpetiole punctate above (New Guinea).

stigmatica Emery

Petiole and postpetiole, in part, smooth and shining above; sculpture of head and thorax stronger. (Loyalty Islands. Samoa. Fiji).

stigmatica Emery subsp. *sublevinodis* Emery

5. Head and thorax shining; thorax not striate or rugose, but sparsely punctate; head with widely separated parallel costae or sparsely striate....6

Head and thorax rugosely striate and punctate; subopaque.....8

6. Occipital region without costae.....*tortuosa* Mann subsp. *polita* Mann

Occipital region with parallel, arcuate costae.....7

7. Front with interrupted carinae inward from and parallel to frontal carinae.....(Fiji). *tortuosa* Mann

Front without carinae inward to frontal carinae.

tortuosa Mann, subsp. *levifrons* Mann

8. Larger species (length 2.50-3 mm.). Head, scarcely longer than broad with rounded sides; antennal scrobes poorly defined: inferior epinotal spines long. Sculpture coarse.....*rugosa* Mann

Smaller species (length 2.10-2.25 mm.). Head distinctly longer than broad with nearly straight sides. Antennal scrobes well defined. Inferior epinotal spines short. Sculpture fine.....*striatella* Mann

ADELOMYRMEX (ARCTOMYRMEX, subgen. nov.).

Head subquadrate. Mandibles elongate, basal border short and strongly dentate in front of middle. Clypeus moderately produced at middle, the anterior border quadridentate. Frontal carinae short, moderately dilated and approximate at base. Antennae 12-jointed, short, and stout, club 2-jointed, the terminal joint very large. Promesonotal suture obsolete. Meso-epinotal impression strong laterally, weak at middle. Epinotum with pair of spines above; inferior angles produced and rounded. Petiolar node in profile elevated, subquadrate. Postpetiole rounded, longer than petiole.

Near *Adelomyrmex* but differing in having the clypeus 4-dentate, and in the structure of the petiole and postpetiole. The inferior epinotal angles in *Adelomyrmex* are pointed, the spines are large and

differently formed. In *Arctomyrmex* the penultimate antennal joint is smaller proportionally even than in *Adelomyrmex* and the club has the appearance of being one-jointed.

Genotype.—*Adelomyrmex (Arctomyrmex) hirsutus*, sp. nov.

42. ADELOMYRMEX (ARCTOMYRMEX) HIRSUTUS, sp. nov. Fig. 21.

Worker. Length 1.75 mm.

Head a little longer than broad, sides nearly straight, posterior corners broadly rounded, occipital border shallowly and narrowly concave at middle. Basal edge of mandibles with a triangular tooth a little in front of middle, blades with four small, separated teeth. Anterior border of clypeus bluntly

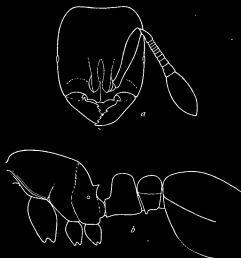


FIG. 21.—*Adelomyrmex (Arctomyrmex) hirsutus* Mann. Worker. a. Front view of head. b. Lateral view of thorax and petiole.

4-dentate. Antennal scapes extending less than two thirds the distance to occipital corners; first funicular joint longer than the three succeeding joints together, remaining joints, except the terminal strongly transverse, terminal joint very large, as long as the seven preceding joints together. Eyes flat, situated in front of middle of sides of head. Thorax moderately convex in profile. Mesoepinotal suture strongly impressed at sides, feebly at middle. Epinotum flat, roundly margined at sides and armed with a pair of short, triangular spines; inferior angles produced and rounded. Petiole very shortly pedunculate; node from above transversely oval, less than twice as broad as

long, in profile higher than long, little narrower above than at base, with nearly straight anterior and posterior surfaces and broadly rounded dorsum. Post-petiole about as long as petiole, rounded; from above a little broader than petiole, rather narrowly rounded at sides.

Shining. Mandibles finely punctate; coarse, foveolate, widely separated punctures on head, (lacking on a narrow strip on front and vertex), thorax, (lacking on most of mesonotal disc), and abdomen, more regular on gaster than on other parts. Scapes sparsely punctate.

Head, body, and appendages with copious, long, and very fine and silky hairs, which are shorter and somewhat less abundant on the appendages.

Fuscipiceous; legs and antennae lighter.

Vanua Levu: Lasema.

Described from one worker found beneath a stone. It is evidently hypogaecic in habit.

43. TETRAMORIUM (TETROGMUS) SIMILLIMUM (Nylander).

Myrmica simillima (Nyl.). Smith, List. anim. Brit. mus. Acul., 1851, p. 118, ♀.

Taviuni: Somo Somo.

Occurs as a house-ant, probably throughout the islands.

44. TETRAMORIUM (TETRAMORIUM) GUINEENSE (Fabricius).

Formica guineensis Fabr., Entom. syst., 1793, 11, p. 357, n. 31, ♀.

Throughout the islands, most commonly in cultivated districts.

45. TETRAMORIUM (TETRAMORIUM) TONGANUM Mayr.

Verh. Zool. bot. gesellsch. Wien, 1870, 20, p. 972, 976, ♀.

Viti Levu: Waiyanitu. Vanua Levu: Lasema. Taviuni: Somo Somo.

Nests in small colonies in rotten wood. It is much less common than the following species.

46. TETRAMORIUM (TETRAMORIUM) PACIFICUM Mayr.

Verh. Zool. bot. gesellsch. Wien, 1870, 20, p. 972, 976, ♀ ♀.

Viti Levu: Nadarivatu, Waiyanitu, Nasoqo. Vanua Levu: Lasema, Labasa, Wainunu. Taviuni: Somo Somo, Nagasau. Ovalau; Levuka. Kadavu: Buke Levu.

A common species, frequently seen on leaves and tree-trunks. It nests in hollow twigs or in rotten wood.

46a. TETRAMORIUM (TETRAMORIUM) PACIFICUM Mayr, var. WILSONI,
var. nov.

Worker. Length 2.75 mm.

Differing from typical *pacificum* in its color, being brownish yellow throughout, and in having the striae on front of head much finer.

Viti Levu: Nausori (Type-locality), Waiyanitu. Vanua Levu: Lasema, Suene. Kadavu: Vanua Ava.

This variety nests in rotten wood or hollow twigs.

47. TRIGLYPHOTHRIX PACIFICA, sp. nov.

Worker. Length 2-2.25 mm.

Head a little longer than broad, as broad in front as behind, sides nearly straight, occipital angles rounded, border straight. Mandibles 5-dentate. Clypeus slightly convex at middle, anterior border broadly rounded. Frontal carinae feeble, extending to tip of antennae, scrobes broad and shallow. Antennal scapes stout, extending seven eighths the distance to occipital corners; first funicular joint as long as the second and third together. Eyes large and convex, situated at sides of head in front of middle. Thorax robust, broadest at humeri, which are broadly rounded; arcuate in profile. Epinotal spines stout, straight, as long as their distance apart at base, directed backward and slightly upward. Petiolar peduncle short, node in profile longer than high, with concave anterior and slightly rounded posterior surfaces and broadly convex dorsum; from above subglobose, a little longer than broad. Postpetiole as broad as petiole, slightly broader than long; in profile higher than long, rounded above. Legs stout.

Opaque, except postpetiole and gaster which are shining. Mandibles coarsely striate. Head, thorax, epinotum, except between spines and the declivity, densely, foveolately pitted, with reticulate carinae between the pits; antennal scrobes rugose; front of head with a median carina that extends from base of clypeus one third the length of head.

Pilosity short, fine, and abundant.

Dark brown to black, appendages light reddish brown.

Female (decalated). Length 2.50 mm.

Except for the usual sexual modifications, differing from the worker only in the somewhat shorter epinotal spines and in the petiolar node being a little broader than long.

Viti Levu: Nadarivatu.

Approaches *P. striatidens* F. Smith, but is differently colored and very much more strongly sculptured, and lacks the distinct striation on front of head.

It is evidently rare, for I found only one colony, nesting beneath a stone. *Type*.—M. C. Z. 8,709.

48. *STRUMIGENYS (CEPHALOXYS) VITIENSIS*, sp. nov. Fig. 22c.

Worker. Length 1.4 mm.

Head short and broad, posterior corners rounded, border concave at middle. Mandibles shorter than clypeus, trigonal, their blades with about twelve very fine and acute, triangular, subequal teeth. Clypeus convex at middle, im-

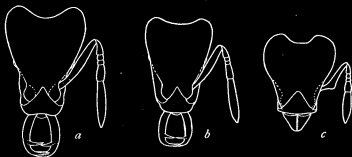


FIG. 22.—a. *Strumigenys jepsoni* Mann. b. *Strumigenys seolestus* Mann. c. *Strumigenys (Cephaloxys) vitiensis* Mann. Workers. Front views of heads.

pressed at sides and in front, with the anterolateral lobes elevated and angulately margined. Antennal scapes slender at basal sixth, then strongly broadened, extending a little more than half the distance to the posterior corners; first funicular joint a little longer than the fourth and as long as the second and third together, terminal joint longer than the remainder of funiculus. Scrobes broad and deep, containing the entire antennae and divided at middle by a longitudinal carina for three fourths the length. Eyes very small, situated ventrally at middle of sides. Thorax broad, not impressed. Pronotum flat, margined at sides and front, humeri obtusely angulate. Base of epinotum nearly flat, spines absent, declivity with very high lamellate margins. Petiolar node rising abruptly from peduncle, a little higher than long and broader than long, slightly convex above. Postpetiole twice as broad as petiole.

Head subopaque, the remainder moderately shining. Head coarsely,

foveolately punctate, gaster with strong basal striae, thorax finely and superficially punctate.

Spongiform processes very dense and continuous on ventral and lateral surfaces and posterior borders of petiole and postpetiole. Scares with a series of curved club-shaped hairs on outer border, the one at the basal angle twice as long as the others. Head and thorax with exceedingly sparse microscopic hairs.

Brownish yellow, the head darker than the rest.

Vanua Levu: Lasema (Type-locality). Viti Levu: Saiaro. Lau: Lakeba.

Occurs in small colonies beneath stones. The deep scrobes, containing scares and funiculi, the trigonal mandibles warrant, I think the resurrection of Smith's genus *Cephaloxys* as a subgenus to contain *S. vitiensis* and *S. capitata*.

In the structure of the head *S. vitiensis* resembles very closely *S. capitata* F. Smith, as described and figured by Emery (Ann. Mus. civ. stor. nat. Genova, 1887, 5, p. 468, pl. 2, fig. 20, ♂) but the thorax is entirely different. In *capitata* the mesoepinotal suture is impressed and the dorsum of the pro- and mesothorax convex, instead of being nearly flat and the humeral angles are rounded. The antennae are not as thick and the epinotum is armed with flattened spines, which are lacking in *vitiensis*. Type.—M. C. Z. 8,727.

49. STRUMIGENYS GODEFFROYI Mayr.

Sitz. Akad. wiss. Wien, 1866, 53, p. 516, ♀.

Viti Levu: Nadarivatu, Waiyanitu, Tai Levu. Vanua Levu: Sene, Lasema; Taviuni: Somo Somo. Kadavu: Vunisea, Vanua Ava. Lau.

50. STRUMIGENYS JEPSONI, sp. nov. Fig. 22a.

Worker. Length 1.5-2 mm.

Head similar in shape but broader, than in *godeffroyi*. Mandibles less than half as long as head, of subequal width to near apex; armed with two long apical teeth and a third, equally long and basal to these. Clypeus concave at anterior border. Antennal scares extending two thirds the distance to occipital corners; first funicular joint longer than the second and third together, and as long as the fourth, terminal joint a little longer than the remainder of the funiculus. Thorax not impressed at suture. Pro- and mesonotum together elongate-oval. Base of epinotum rather flat. Spines long and

very slender, supporting the upper end of a very thin, spongiform lamella that borders the sides of declivity. Petiolar node a little longer than the pedicel, longer than broad; in profile, longer than high and convex above. Postpetiole transversely oval, about twice as broad as petiole.

Mandibles uniformly, shallowly punctate and shining. Head coarsely punctate and opaque. Thorax more finely punctate and with irregular longitudinal striae, subopaque. Epinotum finely punctate on anterior half of base, the rest and the petiole and postpetiole smooth and shining. Gaster with short, parallel costae basally.

Erect hairs long and flexuous, sparse on head and body; shorter curved hairs on head and thorax and at outer border of antennal scapes. Spongiform hairs forming a very thin lamella at margins of epinotal declivity and well developed on ventral and lateral surfaces and posterior borders of petiole and postpetiole.

Reddish brown.

Vanua Levu: Suene.

Described from a small series taken from beneath a stone.

The species resembles *godeffroyi* but has the head broader and the mandibles much shorter and thicker; the sculpture of the thorax is different (not striate in *godeffroyi*) and most of the epinotum and the petiole and postpetiole smooth and shining. The spongiform processes on the epinotum are very thin compared with those in *godeffroyi*.

Named in honor of Mr. F. B. Jepson, government entomologist of Fiji.

51. *STRUMIGENYS SCELESTUS*, sp. nov. Fig. 22b.

Worker. Length 1.75 mm.

Head moderately elongate, sides slightly and evenly concave in front, feebly convex behind, posterior corners broadly rounded, border shallowly concave. Mandibles less than half as long as head, thickest basally and narrowed toward tip, slightly arcuate, with a pair of slender apical spines, and basal to these a third long, slender spine. Clypeus flat, feebly rounded apically. Antennae stout, their scapes extending three fourths the distance to occipital corners; first funicular joint as long as the second and third together; second and third joints subequal, a little longer than broad; fourth joint as long as the first three together; terminal joint as long as the remainder of funiculus. Eyes small, situated at inferior part of sides of head, well back of middle. Thorax not impressed, in profile convex in pronotal region, flat behind. Base of epinotum narrowly margined. Epinotal spines short and very acute, extended basally as broad, lamellate margins to the epinotal declivity. Peduncle of petiole thick; shorter than node; node broader than long and

a little longer than high, feebly convex above. Postpetiole about twice as broad as petiole; transversely oval.

Head, thorax, petiole, legs subopaque and densely punctate. Postpetiole and gaster shining, the latter with coarse, short striae on first segment. Mandibles moderately shining, finely punctate.

Fine, short, erect hairs moderately abundant on body and shorter curved hairs rather dense on head.

Color testaceous.

Taviuni: in mountains near lake.

Described from a single worker found beneath a stone.

Resembles *S. biroi* Emery, but differs in the shallowly concave occipital border of the head which in *biroi* is narrowly and deeply excised.

52. *STRUMIGENYS NIDIFEX*, sp. nov. Fig. 23.

Worker. Length (including mandibles) 3.5–5 mm.

Head broad behind, posterior border deeply excised, vertex broadly and strongly impressed transversely; front above eyes subgibbous; cheeks swollen and rounded. Base and lateral lobes of clypeus convex, anterior middle portion depressed, border strongly concave at middle. Mandibles a little more than half as long as head at middle, their blades of subequal thickness, slightly curved, with three teeth apically, the inner of which is as long as the other two and situated dorsally. Antennae slender, their scapes extending three fourths the distance to occipital corners; first funicular joint as long as the second and third together, third joint much shorter than the second; terminal joint nearly as long as the three preceding joints together. Scrobes broad and deeply impressed in front of eyes, indistinct posterior to them. Eyes rather large and convex. Thorax elongate, humeri rounded.

FIG. 23.—*Strumigenys nidifex* Mann.

Worker. Front view of head.

Base of epinotum about as long as declivity, somewhat elevated, submargined at sides; spines acute, and distinctly longer than their distance apart at base. Petiole long and slender, its peduncle much longer than the node; node longer than high, abrupt in front, nearly flat above; from above, longer than broad rounded in front and at sides. Postpetiole slightly broader than long and a little less than twice as broad as node.

Opaque, except gaster which is shining. Mandibles somewhat shining, shallowly punctate. Head, thorax, epinotum, petiole, postpetiole, and legs very densely punctate. Gaster striate basally.

Stiff erect hairs very sparse on head and body, and short curved hairs sparsely distributed on head, more abundant on appendages. Spongiform appendages fine on ventral surface and posterior border of petiole, stronger on postpetiole.

Dark brown. Mandibles, funiculi, and tarsi lighter.

Female. Length 5 mm.

Very similar to the worker, except in thoracic structure and in the stouter epinotal spines. The wings are clear, with fuscous veins and stigma.

Male. Length 3.90 mm.

Head, excluding eyes, much longer than broad, sides posterior to eyes slightly convex, posterior corners very narrowly rounded, border deeply excised. Mandibles well developed, acute, their blades at middle with a broad, triangular tooth. Clypeus at middle elevated into a broad carina, anterior border feebly concave. Eyes convex, about one third as long as head, situated at a distance from base of mandibles a little less than their longitudinal diameter. Antennae 13-jointed, scape shorter than eye, first funicular joint more than half as long as scape, remaining joints elongate, cylindrical and subequal, except the terminal which is one and one half times as long as the penultimate. Thorax robust. Parapsidal furrows strong. Epinotum with flattened base and declivity, concave between the spines which are reduced to blunt tubercles. Petiole slender, the node longer than broad and rounded above. Postpetiole slightly longer than broad, a little broader than the petiole. Gaster long and narrowed apically, genitalia prominent.

Head, thorax, petiole, and postpetiole densely punctate and opaque. Gaster shining, with short striae at base of apical segment. Wings densely hairy.

Dark brown.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu, Vesari. Kadavu: Buke Levu.

Belongs in a group with *loriae* Emery and *chyzeri* Emery from New Guinea, resembling the latter in having the basal mandibular spine situated dorsally; *S. nidifex* differs from *chyzeri* in being much larger, the basal mandibular tooth is long and slender, similar to the terminal teeth; the thorax and petiole entirely different.

It is rather a common ant in certain localities, but the colonies are difficult to locate. The favorite nesting site is between two layers of stone, though nests were found also beneath stones and, more rarely, in rotten logs. The colonies sometimes contain upward of a hundred

workers. The workers build thin walls of mud about the nest and separate small chambers by these.

A colony, which I placed with some damp earth in a jar for observation, in a few days had the sides of the jar reticulated with these walls, made from a little clay placed in the jar. *Type*.—M. C. Z. 8,710.

53. *STRUMIGENYS WHEELERI*, sp. nov. Fig. 24.

Worker. Length 2.75–3 mm.

Head elongate, sides in front of eyes nearly parallel, posterior angles prominent, narrowly rounded, border strongly and narrowly concave. Mandibles less than half as long as head, very slightly arcuate, with nearly parallel inner and outer borders; with two subequal, long apical teeth, bent in at right angles to the blades, and a short, acute tooth on the dorsal surface of the blade, near the base of subapical tooth. Clypeus flat, except at middle near front where it is shallowly impressed; anterior border concave at middle. Antennal scapes extending about three fourths the distance to occipital corners; first funicular joint longer than the second and third together, second and third subequal, terminal joint as long as the third and fourth together. Antennal scrobes broad, deep and well defined at anterior third, shallow basally. Eyes feebly convex, a little in front of middle of sides of head. Thorax slender. Pronotum narrowed in front, with rounded humeri, nearly twice as broad as mesonotum which is concave in profile. Epinotum armed with short, triangular spines, less than half as long as distance apart at base. Petiolar node longer than broad,



FIG. 24.—*Strumigenys wheeleri* Mann. Worker. Front view of head.

rounded in front; in profile longer than high and very slightly convex above. Postpetiole twice as broad as petiole, rounded in front and at sides. Spongiiform appendages present on ventral surfaces and on posterior margins of petiole and postpetiole.

Opaque, gaster moderately shining. Mandibles, antennae, and legs rugulose-punctate. Clypeus, scrobes, epinotum, petiole, and postpetiole densely cribrate punctate, remainder of head and thorax punctate and rugose, the rugae of the vertex and occiput reticulate. First gastric segment with oblique striae which are coarse basally and become indistinct before the middle.

Head and body with very sparse erect hairs and a few shorter curved hairs on head and thorax, shorter curved hairs on appendages and clypeal border.

Reddish brown, the gaster darker than the rest.

Female (deilated). Length 3.10 mm.

Closely resembling the worker, with the usual sexual differences.

Viti Levu: Nadarivatu.

Described from workers and a female taken in a small colony in rotten wood.

This species resembles *feae* from Lower Burmah in its large size, and slender form, the narrow head, which is not angulate in front or impressed at vertex and in the small size of the inner mandibular tooth. The head of *feae* is somewhat broader and the sculpture entirely different, the disc of postpetiole is smooth and shining, the epinotal spines are much more slender.

Key.

1. Mandibles short, with distinct basal and apical margins, the latter with numerous fine teeth. Antennal scrobes large and broad, containing the entire antennae. Prothorax margined.....*vitiensis* Mann
Mandibles linear, with three apical teeth. Antennal scrobes less developed. Prothorax not margined.....2
2. Large species (3-5 mm.). Dark in color.....3
Small species (1-2 mm.). Light in color.....4
3. Head slender, gradually narrowed anteriorly, sides not constricted at eyes, cheeks parallel. Basal mandibular tooth short. Epinotal spines short. Peduncle of petiole shorter than node.....*wheeleri* Mann
Head much broadened behind, strongly constricted at eyes; cheeks convex. Basal mandibular tooth as long as terminal teeth. Epinotal spines long. Peduncle of petiole longer than node.....*nidifer* Mann
4. Occipital border shallowly concave.....*scelestus* Mann
Occipital border deeply concave.....5
5. Mandibles longer, slender, of subequal thickness. Petiolar node coarsely punctate and opaque above and with strongly developed spongiform hairs.....*godeffroyi* Mayr
Mandibles shorter, thicker, more arcuate. Petiolar node smooth shining above and with less developed spongiform hairs.....*jepsoni* Mann

54. RHOPALOTHRIX' (RHOPALOTHRIX) ELEGANS, sp. nov. Fig. 25.

Worker. Length 3.75-4.25 mm.

Head, distinctly longer than broad, its transverse diameter between eyes about equal to the width at anterior border; vertex strongly impressed at sides so that the occipital corners stand out as large lobes with margin rounded at front half, then concave and with the posterior angles narrowly rounded;

posterior border broadly concave. Mandibles slender, their blades with 12-14 unequal, triangular teeth. Clypeus slightly convex, its anterior border very feebly concave. Antennae 7-jointed; basal dilation of scape narrowly rounded at outer border, about a third as broad as long; first funicular joint as long as the second and much thicker; all joints longer than broad, gradually increasing in size to the terminal, which is a little shorter than the three preceding joints together. Scrobes broad and deep. Eyes small, situated at middle of the margin that borders the scrobes. Pronotum longitudinally impressed at middle. Promesonotal suture impressed but with continuous sculpture. Mesoepinotal impression distinct. Base of epinotum nearly flat



FIG. 25.—*Rhopalothrix* (*Rhopalothrix*) *elegans* Mann. Worker. Front view of head.

in profile; spines stout and blunt at tip, longer than their distance apart at base, broadly lamellate basally, the lamellae continuing as margins to the declivity. Petiolar node from above longer than broad, in profile as long as high and longer than the peduncle; anteroventral tooth large, lamellate, and rounded at tip. Postpetiole twice as broad as petiole and much broader than long, strongly longitudinally impressed at middle and gibbous posteriorly on either side of impression.

Opaque. Mandibles rugose basally. Head, thorax, petiole, and postpetiole with very coarse irregular costae, which are oblique on the front, transverse on the occiput and longitudinal on the thoracic dorsum. Base of first gastric segment with irregular costae, the rest strongly cribrate-punctate.

Body, antennae, and legs with abundant, coarse, semierect, flattened, clavate hairs; body and antennae in addition to these with sparse, longer, erect, clavate hairs.

Dark ferruginous throughout.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu, Vanua Levu: Suene. Ovalau.

Described from workers taken from several colonies. It nests beneath stones or logs in the deep woods. The formicaries contain few workers. They are difficult to discern on account of their neutral color and the habit of remaining motionless when disturbed.

Rhopalothrix elegans is a very characteristic species related to *procera* Emery, from which it differs in the more pronounced occipital lobes, the elongate antennal joints, the funicular joints are transverse in *procera*, and very markedly in its sculpture, and larger size. *Type*.—M. C. Z. 8,711.

55. *IRIDOMYRMEX SORORIS*, sp. nov. Fig. 26.

Worker. Length 1.75–2 mm.

Head about one fifth longer than broad, moderately narrowed in front, with convex sides, broadly rounded posterior corners and nearly straight occipital border. Mandibles thick, their blades with six small triangular teeth. Clypeus roundly elevated at middle of basal half, very shallowly concave at middle of anterior border. Frontal carinae extending a little beyond anterior border of eyes. Antennal scapes barely surpassing occipital corners; funiculus stout, first and second joints nearly twice as long as broad, remaining joints, except the terminal, slightly longer than broad, terminal joint not quite as long as the two preceding joints together. Eyes large, feebly convex, situated in front of sides a little before the middle. Thorax robust. Pronotum broader than long, strongly rounded at sides, rather flat above. Mesothorax longer than broad, little convex above. Mesoepinotal impression very strong. Base of epinotum slightly longer than broad, moderately convex, much shorter than the declivity over which the thick posterior border projects; declivity in profile concave. Node very broad and thin, as broad basally as at top, narrowly rounded above; seen from the front, the dorsal surface is broadly rounded. Gaster short, and broad.



FIG. 26.—*Iridomyrmex sororis* Mann. Worker. Lateral view of thorax and petiole.

Opaque, except the gaster, which in certain lights has a strong violaceous reflection. Mandibles densely punctate at basal half, more sparsely apically. Head, thorax, and epinotum very densely punctate; petiole, gaster, and legs densely but much more finely punctate.

Clypeus with a few erect hairs; gaster with a covering of microscopic recumbent pubescence.

Color black, except for the violet reflections on gaster, and the basal half of scapes and the funiculi which are reddish brown and the tarsi, which are yellowish brown.

Female. Length 4 mm.

Head similar to that of worker. Antennal scapes not quite attaining occipital corners. Eyes situated at sides of front anterior to middle; their

longitudinal diameter one and two thirds times as long as the distance from anterior borders to base of mandibles. Thorax elongate. Mesothorax very slightly convex above. Scutellum about as long as broad, feebly rounded. Epinotum in profile short and convex, the base broadly rounding into the declivity. Petiole shorter and thicker than in worker. Gaster long and slender.

Moderately shining. Head densely punctate and opaque as in worker. Thorax and abdomen with dense, but minute punctures.

Erect hairs short and sparse. Very fine appressed pubescence on head, body, and legs, longest on gaster.

Color black. Funiculi and mandibles dark red-brown; tarsi brown. Wings clear, with pale brown veins and stigma.

Male. Length 1.75 mm.

Head a little broader than long, broadly rounded behind. Mandibles well developed, pointed apically, finely denticulate. Eyes a little more than half as long as head. Antennae short and thick, decreasing in thickness toward apex, 13-jointed; scapes slightly longer and more slender than first funicular joint; funicular joints 2-11 subequal, a little longer than broad; terminal joint less than twice as long as penultimate. Thorax robust. Mesonotum moderately convex. Scutellum strongly convex. Basal and declivous portions of epinotum subequal and rounding into each other. Node thickly wedge-shaped, broad and concave above and obliquely excavate behind, with narrow anterior and lateral margins and prominent angulate corners.

Shining. Densely, shallowly punctate. Pilosity short and exceedingly sparse.

Color black; gaster and legs dark reddish brown. Wings hyaline, veins and stigma pale.

Viti Levu: Nadarivatu.

Described from a large series of workers from colonies in *Myrmecodia* bulbs. A clavigerid beetle is harbored by this ant.

This species resembles *glaber* from Australia and its subspecies *someri* Forel from New Caledonia, but is distinct in the shape of the head which is much shorter and with more convex sides. *Type*.—M. C. Z. 8,712.

56. *IRIDOMYRMEX NAGASAU*, sp. nov. Fig. 27.

Worker. Length 3-5 mm.

Head longer than broad, narrowed in front and behind, sides convex, occipital corners rather narrowly rounded, border concave at middle. Mandibles with six stout triangular teeth on apical two thirds of blades, behind these, on

the rounded basal part of blades, indistinctly denticulate. Clypeus nearly flat, straight at middle of anterior border. Antennal scapes slightly surpassing occipital corners; funicular joints all longer than broad, those apically becoming shorter and thicker; terminal joint not so long as the two preceding joints together. Eyes little convex, situated in front of sides of head at a distance from base of mandibles equal to more than twice their longitudinal diameter. Median ocellus distinct. Pronotum as long as broad, narrowed in front, broadest behind middle, in profile feebly convex. Mesonotum longer than broad, rather flat behind, basally with a pair of prominent spiracular tubercles. Mesoepinotal impression deep. Base of epinotum rather flat above, a little longer than the declivity and broadly rounding into it. Petiolar node short and thick, posterior surface straight, anterior surface sloping, the top triangular and submargined. Legs long and slender.



FIG. 27.—*Iridomyrmex nagasau* Mann. Worker. Lateral view of thorax and petiole.

Gaster shining, the remainder less strongly shining. Mandibles at basal half coarsely punctate. Head, thorax, abdomen, and appendages densely but very finely punctate, and covered with fine pubescence, which is most abundant on the head. Stiff, erect, and moderately long pilosity moderately abundant on head, body, and appendages.

Fuscopiceous, mandibles reddish; funiculus lighter; tarsi yellowish white. Pubescence yellowish; pilosity black.

Tavjuni: Nagasau.

Described from numerous workers taken in the forest on the MacKenzie estate. All the colonies that I found were in the bulbs of a *Myrmecodia* growing on high trees and each of these plants that I was able to examine contained ants. One bulb had been left on the ground for a week, on a planter's assumption that it was an orchid, so that the ants would leave, but on examination proved to still shelter part of a large colony.

The structure of the petiole, thick basally and strongly narrowed at apical third, is distinctive. *Type*.—M. C. Z. 8,713.

56a. IRIDOMYRMEX NAGASAU Mann, subsp. ALTICOLA, subsp. nov.

Worker. Length 3.75–5 mm.

Differing from typical *nagasau* in having the basal portion of epinotum less elevated, sloping and more broadly rounding into the declivity, and in color, the head being uniformly reddish brown and the thorax somewhat lighter.

Taviuni: Nagasau, near Lake.

A series was taken from several colonies in Myrmecodia bulbs at the edge of the swamp that surrounds the crater-lake in the interior.

Type.—M. C. Z. 8,714.

56b. IRIDOMYRMEX NAGASAU Mann, subsp. AGNATUS, subsp. nov.

Worker. Length 3–4 mm.

Differing from *I. nagasau nagasau* in its smaller size, the base of epinotum lower and more sloping (as in subsp. *alticola*) and in being brown in color, with the gaster slightly darker than the rest and the tarsi white.

Vanua Levu: Wainunu.

Described from several workers found running on tree-trunks.

Type.—M. C. Z. 8,715.

57a. IRIDOMYRMEX ANCEPS Roger, subsp. IGNOBILIS, subsp. nov.

Worker. Length 2.75 mm.

Head a third longer than broad, narrowed in front, sides convex, posterior corners and border broadly rounded. Mandibles elongate, with six rather stout, triangular teeth. Clypeus convex, anterior border straight. Antennae slender, scapes surpassing occipital borders by about one third their length; funicular joints all more than twice as long as broad, decreasing in length toward apex, terminal joint two thirds as long as the two preceding joints together. Eyes large, and feebly convex, situated in front of sides posterior to middle of head. Pronotum longer than broad, moderately convex above. Mesonotum much longer than broad, rather flat. Epinotum in profile convex, not elevated, the base and declivity broadly rounding into each other. Node thickly squamiform, little narrowed above; seen from behind, about twice as high as broad and rounded above. Legs very long and slender.

Moderately shining. Mandibles basally with square, coarse punctures. Head, body, and appendages finely, densely, and shallowly punctate.

Erect hairs short and sparse on head and body; lacking on appendages. Short, silky, and very fine pubescence on head and body. Fuscopiceous, tarsi lighter.

Viti Levu: Nadarivatu.

Described from three workers found on a tree-trunk.

This form differs from typical *anceps* in its smaller size, thinner petiole, shorter and less compressed femora and in the much sparser pilosity.

58. *TAPINOMA MELANOCEPHALUM* (Fabricius).

Formica melanocephala Fabr., Entom. syst., 1793, 2, p. 353.

Throughout the islands.

Though one become accustomed to seeing this ant in practically every locality visited, it was a surprise to find it well established on such an isolated and barren spot as Vekai, in Lau. Vekai is merely a piece of elevated coral rock, uninhabited and seldom visited. Besides *T. melanocephalum*, *Prenolepis longicornis* was abundant on Vekai.

59. *TECHNOMYRMEX ALBIPES* (Smith), var. *VITIENSIS*, var. nov.

Worker. Length 2.5 mm.

Differing from typical *albipes* in the color of the legs which are reddish brown, with the tarsi light brown, instead of black with the tarsi white, a slight difference, but constant in a large series from many different localities on the larger islands.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu, Nasoqo, Vesari, Tai Levu. Vanua Levu: Suene, Lasema, Labasa. Taviuni: Somo Somo, Nagasau. Ovalau: Levuka. Kadavu: Buke Levu.

Type.—M. C. Z. 8,716.

60. *PLAGIOLEPIS FORELI*, sp. nov.

Worker. Length .75-.9 mm.

Head slightly longer than broad, as broad in front as behind, sides convex, posterior border nearly straight. Clypeus broadly and bluntly carinate at middle, straight at middle of anterior border. Antennal scapes surpassing occipital corners by a distance equal to three times their diameter at tips; joints 2 and 3 of funiculus broader than long, the remainder longer than broad

terminal joint as long as the three preceding joints together. Eyes large, rather flat, situated in front of sides of head a little anterior to middle. Thorax from above less than three times as long as broad, shaped as in *mactavishi* Wheeler, like an hour-glass, with the mesothorax strongly constricted. Pronotum much broader than long and broader than the epinotum. Mesonotum transversely oval. Epinotum broadened and truncated behind; in profile with base and declivity of equal length and broadly rounding into each other, the lateral margins bituberculate. Petiole small and thin, its upper border broad and nearly straight when seen from behind.

Smooth and shining.

Rather strong erect white hairs present on clypeus and gaster. Pubescence fine and moderately abundant on head and appendages.

Honey-yellow, with the posterior half of gaster infuscated.

Viti Levu: Suva.

Described from three workers.

Plagiolepis mactavishi Wheeler from the Society Islands (Moorea), is close to *foreli* but has the posterior border of head distinctly excised and the thorax more elongate.

61. *PLAGIOLEPIS LONGIPES* (Jerdon).

Formica longipes Jerd., Madras journ. litt. & sci., 1851, 17, p. 122, ♀.

Abundant throughout the islands, especially in the cultivated districts.

Some Nautilus shells which I placed in my room at Vunisea, after a week were tenanted by a populous colony of this ant, including larvae and pupae.

62. *PRENOLEPIS* (*PRENOLEPIS*) *LONGICORNIS* (Latreille).

Formica longicornis Latr., Hist. nat. fourmis, 1802, p. 113, ♀.

Abundant in all localities visited.

63. *PRENOLEPIS* (*NYLANDERIA*) *VITIENSIS*, sp. nov. Fig. 28.

Worker. Length 1.75-2 mm.

Head subquadrate, slightly longer than broad, sides moderately convex, occipital border narrowly excavated at middle. Mandibles 6-dentate, the basal tooth conspicuously stouter than the others. Clypeus convex, twice as broad as long, obtusely carinate at middle, feebly and narrowly concave at

middle of anterior border. Antennal scapes surpassing occipital corners by a little less than half their length. Thorax stout. Mesonotum flat, but little longer than broad. Mesoepinotal impression broad and deep. Basal portion of epinotum convex, broad, about as long as declivity and broadly rounding into it. Node rather thick, cuneiform, moderately inclined forward.

Shining. Mandibles sparsely punctate. Front and vertex with coarse, setigerous punctures. Pilosity arranged as follows:—long and abundant on head and gaster and mixed with shorter, fine, sparse, semi-erect hairs. Prothorax with four pairs and mesothorax with two pairs of coarse hairs, the outer pairs on the pronotum shorter than the inner ones; short, erect, and fine hairs sparsely distributed on appendages.

Color brownish yellow, with the tips of antennae paler and the gaster somewhat infuscated.

Male. Length 1.80 mm.

Head, excluding eyes, distinctly longer than broad, sides in front of eyes convergent. Eyes about three times as long as their distance to base of mandibles. Clypeus convex, its anterior border very broadly and shallowly concave. Mandibles well developed, their blades distinctly denticulate. Antennal scapes surpassing occipital corners by about half their length. Thorax robust, broadest in front of wing insertions. Metanotum in profile sloping above, nearly straight, with the base a little longer than the declivous portion. Petiole low, rather thickly cuneiform, rounded above.

Genitalia with squamulae a little shorter than the stipes, nearly straight at tips; stipes elongate, curved, narrowly rounded at tips; volsellae broadly spear-head shaped; sagittae slender, with the ends narrowly rounded.

Kadavu: Vunisea.

The workers resemble some small Tongan specimens of *P. vividula* in the U. S. N. M. collection (ex Coll. Mayr.) but is readily distinguished by the difference in the hairs on the antennal scapes, which in *vividula* are very coarse and erect and in *vitiensis* fine and silky. The genitalia of the male is somewhat similar to that of *P. caledonica* Forel as figured by Emery, with the volsellae broader basally and more narrowed at tips, though because of the arrangement of the thoracic macrochaetae in the worker, *vitiensis* belongs in the *vividula* group as defined by Emery (Nova Caledonia. Zool., 1914, 1, p. 422). Type.—M. C. Z. 8,717.



FIG. 28. — *Prenolepis* (Nylanderia) *vitiensis* Mann. Male. Genitalia.

64. PRENOLEPIS VIVIDULA (Nylander).

Formica vividula Nyl., Acta Soc. sci. Fennica, 1846, 2, p. 900, ♀ ♀ ♂, pl. 18, fig. 2.

Viti Levu: Nadarivatu, Waiyanitu, Nausori, Tai Levu, Koro Vatu. Vanua Levu: Lasema, Wainunu, Suene. Ovalau: Levuka. Taviuni: Somo Somo, Nagasau. Kadavu: Vanua Ava. Lau: Munia, Tuvuca. Vanua Mbalavu: Loma Loma.

65. PRENOLEPIS (NYLANDERIA) BURBONICA Forel, var. BENGALENSIS Forel.

Journ. Bombay nat. hist. soc., 1894, 8, p. 406-407, ♀.

Viti Levu: Nadarivatu, Waiyanitu, Suva, Koro Vatu. Vanua Levu: Wainunu, Labasa. Ovalau: Levuka. Taviuni: Somo Somo.

This variety, which occurs in Samoa, is exceedingly abundant throughout the larger islands.

66. PRENOLEPIS (NYLANDERIA) OCEANICA, sp. nov.

Worker. Length 1.25-1.50 mm.

Head a little longer than broad and slightly broadest behind, posterior border nearly straight. Mandibles with four strong teeth and two minute ones. Clypeus very obtusely carinate at middle, anterior border nearly straight. Eyes rather large, feebly convex, situated in front of sides at middle. Antennal scapes surpassing occipital corners by distinctly less than half their length; first funicular joint a little longer than the second and third together, remaining joints except the terminal, less than twice as long as broad. Thorax robust. Mesoepinotal suture broadly impressed. Basal portion of epinotum in profile about one third as long as declivity. Node small and much inclined forward. Legs not very long.

Feebly shining. Mandibles striate. Body finely and shallowly punctate.

Head, body, and appendages rather thinly covered with fine, silky appressed pubescence. Macrochaetae sparse on head and gaster, and two pairs each on pro- and mesonotum and one pair on epinotum.

Color dark brown, to black, with the appendages pale brown. Pilosity yellow-brown.

Viti Levu: Nadarivatu (Type-locality), Waiyanitu.

Distinct from *minutula* Forel, with which it is related in the more robust form and the broader subquadrate head.

The Waiyanitu specimens are much lighter in color than those from the mountains and possibly represent a color variety. *Type*.—M. C. Z. 8,718.

67. *CAMPONOTUS (MYRMOTURBA) MACULATUS* Fabr., subsp.
PALLIDUS F. Smith var.

Viti Levu: Suva, Nausori, Nadarivatu. Ovalau: Levuka. Vanua Levu: Labasa. Kadavu. Lau: Kabara.

My specimens are exceedingly close to, if not identical with var. *samoensis* Santschi, recently described from Samoa. All of the colonies that I found were under bark or in hollow branches, usually of the "ivi" tree. They attend a large coccid always found on this tree.

68. *CAMPONOTUS (MYRMEGONIA) LAMINATUS* Mayr. Fig. 29.

Sitzb. Akad. wiss. Wien, 1886, 53, p. 489, fig. 4, ♀.

Soldier. Length 7-8 mm.

Head longer than broad, narrowed in front, sides and posterior border nearly straight, clypeal region truncated for about three fourths its length. Mandibles with seven blunt teeth. Clypeus quadrate, flattened anteriorly, the



FIG. 29.—*Camponotus (Myrmegonia) laminatus* Mayr. Worker minor. a. Lateral view of thorax and petiole. b. Front view of petiolar node.

anterior border broadly rounded. Cheeks impressed broadly and more shallowly than in *cristatus*. Antennal scapes barely surpassing occipital corners. Pronotum nearly twice as broad as long, slightly convex above. Mesonotum rounded in front, and rather narrowly rounded behind. Base of epinotum compressed, most strongly so apically, where it is subangulately

separated from the declivity. Petiole thick wedge-shape, posterior surface convex, anterior surface convex and sloping, top narrowed and rounded; seen from the front, straight above at middle and obliquely truncate at sides. Gaster elongate. Legs compressed.

Head strongly, the rest moderately shining. Mandibles coarsely punctate and rugulose-striate. Head and thorax very finely coriaceous; front with a few coarse, scattered punctures. Gaster transversely coriaceous-rugulose and with scattered punctures.

Sparse, erect black hairs on head and body and very short minute and sparse recumbent hairs on head, body, and appendages.

Rufocastaneous, with the head, basal bands on first and second gastric segments, lateral blotches on the second, and the tip of gaster black. Appendages rufous.

Worker. Length 5.5-6.5 mm.

Head a little longer than broad, slightly narrowest in front, sides slightly convex, posterior border broadly rounded. Clypeus moderately convex at anterior border. Antennal scapes surpassing occipital border by about three eighths of their length. Pronotum but little longer than broad. Mesopinotum compressed and cristate above, projecting behind as a triangular tooth. Node cuneiform, convex in front, margined above and at sides. Gaster elongate.

Moderately shining, coriaceous-rugulose. Mandibles punctate and rather strongly rugose-striate.

Erect yellowish hairs sparse on head and thorax, abundant on gaster. Fine and short appressed pubescence sparsely distributed on head, body, and appendages.

Head and gaster black, the rest rufocastaneous, mandibles, antennae, and tibiae darker.

Female. Length 10 mm.

Head smaller, but otherwise similar to that of soldier. Epinotum with a short convex base that rounds broadly into the declivity. Petiole not strongly narrowed above, from above less than twice as broad as long, narrowly rounded at sides.

Sculpture and pilosity as in soldier. Head and gaster black, the rest rufocastaneous, darker than soldier.

Wings (length 9.75 mm.) clear, with brown veins.

Male. Length 6.5 mm.

Head longer than broad, cheeks subparallel, posterior border broadly rounded. Clypeus convex, its posterior border rounded. Mandibles with concave and bluntly denticulate blades. Scares surpassing occipital borders by less than half their length.

Color dark brown to black, legs yellow-brown. Wings hyaline, veins and stigma pale brown.

Ovalau: Levuka. Viti Levu: Tai Levu, Saiaro, Nadarivatu, Navai, Waiyanitu, Nausori. Vanua Levu: Labasa. Kadavu: Vuni-sea, Vanua Ava.

Nests in hollow twigs.

Among the workers there is a great deal of variation in the contour of the node, which, seen from the front, may be only very slightly convex, moderately excised, or so deeply that extreme examples might be described as bidentate. The angle at the posterior edge of the epinotum varies too, from very sharp to rounded. In some specimens there is a distinct concavity just in front of the spine.

The worker minor of *laminatus* always has the epinotum more projecting behind than in *cristatus* and the head of the soldier is more strongly oblique in front. The latter character is so much like that in *Colobopsis* that I am sure that the species would have been placed in that subgenus had Mayr received a soldier instead of a worker.

68a. CAMPONOTUS (MYRMEGONIA) LAMINATUS Mayr, var. LEVUANUS,
var. nov.

Worker. Length 6.5-7 mm.

A small series of workers differ from typical *laminatus* in having the thorax and epinotum entirely black. The gaster is unusually long and slender.

Vanua Levu: Wainunu.

69. CAMPONOTUS (MYRMEGONIA) CRISTATUS Mayr. Fig. 30.

Sitz. Akad. wiss. Wien, 1866, 53, p. 489, fig. 3, ♀.

Soldier. Length 9-10 mm.

Head longer than broad, slightly narrowed in front, sides nearly straight, posterior border very shallowly concave; anterior portion subtruncate, the truncated portion rounding into the front. Cheeks with a broad and shallow impression that extends beyond the lateral borders of clypeus. Clypeus subquadrate, a little longer than broad, with broadly rounded anterior border, the surface flattened. Mandibles rather elongate, blades with 7-8 blunt teeth. Antennae slender, their scapes slightly surpassing occipital corners; funicular joints gradually decreasing in length toward apex, terminal joint distinctly

shorter than the two preceding joints together. Eyes small, flattened, situated in front of sides at posterior third of head. Pronotum broader than long, moderately convex above, rounded at sides. Mesoëpinotum strongly compressed, and lamellate behind, the base separated from declivous portion by an obtuse angle. Node cuneiform, thick basally, submargined above; from the front biconcave, with the middle projecting as a bluntly pointed triangular process and the lateral portions obliquely truncate.

Shining throughout. Mandibles densely rugulose-striate. Antennal scapes with distinct, regular punctation. Head, thorax, and abdomen finely, coriaceous-rugulose.

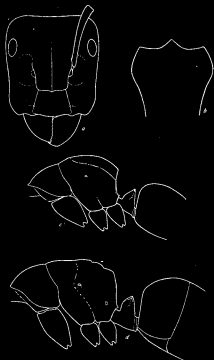


FIG. 30.—*Camponotus* (*Myrmegonia*) *cristatus* Mayr. a, b, d. Worker major. c. Worker minor. a. Front view of head. b. Front view of petiolar node. c, d. Lateral view of thorax and petiole.

Erect hairs fine and very sparse on head and body lacking on appendages. Minute, short, recumbent hairs regularly, though sparsely distributed on head, body, and appendages.

Jet black; tarsi, insertions of scapes, and the funiculi reddish brown.

Worker. Length 6.5-7.5 mm.

Head longer than broad, slightly narrowed in front, sides nearly straight, posterior border broadly rounded. Mandibles 5-dentate. Clypeus nearly flat, anterior border broadly rounded. Antennal scapes surpassing occipital corners by about three eighths of their length. Eyes large, feebly convex. Mesoepinotum compressed, the posterior two thirds very strongly, into a high cultrate ridge, which is angulate at the posterior border. Epinotal declivity narrow and flattened below. Petiolar node cuneiform, convex in front and slightly so behind, distinctly margined above; seen from the front, subangulate at middle of sides, concave above the angles and nearly straight along the top. Gaster elongate. Legs long, femora and anterior tibiae compressed.

Feebly shining. Mandibles densely and strongly rugose-striate. Head and thorax coriaceously rugulose-punctate. Gaster transversely rugulose-punctate.

Erect hairs stiff and black, sparse on head and pronotum and lacking on mesoepinotum and appendages. Gaster with more abundant, finer, and brownish suberect hairs and fine and silky, regular, not dense, recumbent hairs.

Black. Mandibles, funiculi, and tarsi reddish brown.

Female. Length 12 mm.

Head more slender than that of soldier, but otherwise similar. Mesonotum and scutellum flat above, the latter a little broader than long. Epinotum short and rounded in profile. Petiole from the front broader than in soldier, less elevated and pointed at middle and less concave at sides.

Sculpture, pilosity, and color as in soldier. Wings (length 11.5 mm.) clear, with brown veins and stigma.

Male. Length 6.75 mm.

Head a little longer than broad, with very slightly concave cheeks and rounded postocular region. Clypeus feebly convex, its anterior border concave at middle. Scapes surpassing occipital borders by about half their length. Mandibles with two stout, blunt teeth apically.

Color black. Legs brown. Wings very slightly infuscated.

Ovalau: Levuka. Viti Levu: Saiaro, Nadarivatu, Nasoqo, Waiyanitu.

Nests in populous colonies in hollow twigs.

In addition to the difference in the shape of the epinotum and in color, *cristatus* is a large and more robust species than *laminatus*. The petiole of the worker minor, seen from the front is pointed, or in some specimens nearly straight, but not excised.

69. CAMPONOTUS (MYRMEGONIA) CRISTATUS Mayr, var. NAGASAU
var. nov.

The soldiers in a large series from different colonies taken on Taviuni have the femora dark red instead of deep black as in typical *cristatus*, a difference that among a few specimens could be considered nest-variants, or as specimens differing in age, but in the large series before me there is no variation in this respect, so the Taviuni form may be considered varietally distinct.

Taviuni: Nagasau (Type-locality), Somo Somo.

Type.—M. C. Z. 8,719.

69a. CAMPONOTUS (MYRMEGONIA) CRISTATUS Mayr, subsp. SADINA,
subsp. nov.

A large series of soldiers and workers are very similar in habitus to *cristatus*, but the soldiers average smaller in size (length 8 mm.), have the posterior corner of the epinotum more angulate in profile and an indistinct carina on the basal third of clypeus. The worker in size, sculpture, and color are identical with those of *cristatus*, but the epinotum projects as a pointed tooth, as in *laminatus*. The legs are dark reddish brown as in *cristatus* var. *nagasau*.

Taviuni: Somo Somo (Type-locality) Nagasau. Viti Levu: Nadarivatu, Navai, Nasoqo. Vanua Levu: Labasa, Suene.

This form is intermediate between *cristatus* and *laminatus*.

Type.—M. C. Z. 8,720.

70. CAMPONOTUS (MYRMEGONIA) MAAFUI, sp. nov. Fig. 31.

Soldier. Length 8-9 mm.

Near *cristatus* Mayr. Head longer than broad, narrowed in front, sides nearly straight, posterior angles rounded, border broadly and shallowly concave. Mandibles elongate, bluntly 7-dentate. Clypeus quadrate, much longer than broad, anterior border broadly rounded. Clypeus shallowly impressed as in *C. cristatus*. Antennal scapes slightly surpassing occipital border. Eyes small and flat, situated at posterior third of head. Mesoepinotum compressed, in profile irregularly sinuate along basal portion of epinotum, angulately rounding into the declivity, the surface of which is nearly flat at sides and subcarinate at middle. Petiole thick wedge-shaped, convex in front, flat behind, rounded above; seen from the front, broadly rounded above.

Moderately shining. Mandibles coarsely punctate and densely rugose-striate. Head and thorax very finely coriaceous, the latter in addition with fine regular punctures.

Stiff, black, erect hairs very sparse on head and body, lacking on appendages. Fine appressed pubescence sparse on head and appendages, longer and more abundant on gaster.

Head, thorax, epinotum, petiole, tip of gaster, and legs, except tarsi, black; dorsum of first three gastric segments light brownish red, with the posterior margins black; mandibles, funiculi, and tarsi brownish red.

Worker. Length 6.5–7 mm.

Head a little longer than broad, sides feebly convex, posterior border broadly rounded. Mandibles with five strong teeth. Clypeus nearly flat, anterior border broadly rounded. Antennal scapes surpassing occipital corners by nearly half their length. Epinotum much as in *cristatus* but with the posterior margin projecting and rounded. Petiole broad at base, narrow above, with convex anterior and nearly flat posterior surfaces; from the front narrowed and somewhat pointed at middle.



FIG. 31.—*Camponotus (Myrmegonia) maafui* Mann. Soldier. Lateral view of thorax and petiole.

Nearly opaque. Mandibles rugulose-striate. Head and thorax very densely and finely punctate. Gaster transversely coriaceously striolate.

Head and pronotum with erect, rather stiff and sparse hairs. Epinotum with very short and fine erect hairs. Gaster with a moderately dense covering of long yellow recumbent hairs.

Color as in worker major.

Vanua Levu: Lasema (Type-locality), Sueve, Wainunu, Labasa. Nests in hollow twigs.

This species is closely related to *C. cristatus*. The soldiers of *maafui* may be distinguished by the narrower clypeus, the different contour of the epinotal base, the unarmed petiolar node and the color; the workers by the color and pilosity of the gaster and the structure

of the node, which in profile is less narrowed and more rounded above.

In the large series before me the petiole of the worker is pointed above instead of broadly rounded or emarginate. *Type*.—M. C. Z. 8,721.

71. *CAMPONOTUS (MYRMEGONIA) SCHMELTZII* Mayr. Fig. 32.

Sitz. Akad. wiss. Wien, 1866, 53, p. 490, ♀.

Worker. Length 5.5–6 mm.

Head a little longer than broad, sides very slightly convex, sides of occiput submargined, the corners, seen from the sides, subangulate, posterior border shallowly concave. Mandibles 5-dentate. Clypeus moderately convex,

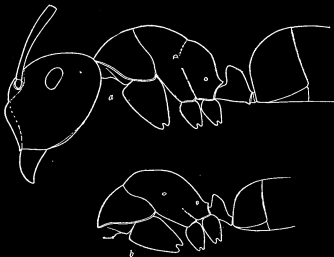


FIG. 32.—*Camponotus (Myrmegonia) schmeltzii* Mayr. a. Soldier. Lateral view of head, thorax, and petiole. b. Worker. Lateral view of thorax and petiole.

anterior border rounded. Antennal scapes surpassing occipital borders by nearly half their length. Eyes large, slightly convex, situated behind the middle of sides of head. Pronotum a little longer than broad. Mesospinotum strongly compressed, behind, in profile elevated and unevenly, arcuately rounded. Petiolar node in profile inclined forward, pointed in front, margined at sides, anterior face short and convex, the dorsal surface long, sloping, and rounding into the posterior. Legs long and slender, femora and tibiae compressed.

Shining. Mandibles finely punctate and with sparse striolae. Head and body finely coriaceous.

Fine, erect, white hairs sparse on head and thorax and more abundant on gaster. Short, recumbent, white hairs, regularly distributed on head, body, and appendages.

Black; mandibles and funiculi reddish brown; legs brownish yellow, the tibiae darker than the rest.

Ovalau: Levuka. Viti Levu: Waiyanitu.

Described from several worker medias from Waiyanitu. The species was described from an Ovalau specimen of the same phase, judging from Mayr's description. My only specimen from this island is a very small worker minor, which has the head proportionately a little longer and less concave behind.

The subcarinate sides of the occiput, the angulate posterior corners of the head, the high, arcuate epinotum and the curious petiole are very characteristic. The front portion of the occipital region is unusually broad and flat.

71a. *CAMPONOTUS* (*MYRMEGONIA*) *SCHMELTZII* Mayr, var. *KADI*,
var. nov.

Soldier. Length 6.5 mm.

Head longer than broad, sides nearly straight, posterior border very shallowly concave, anterior portion obliquely truncated, rounding into front. Checks broadly and shallowly impressed. Truncated portion of clypeus flat, anterior border rounded. Mandibles 6-7-dentate. Antennal scapes slightly surpassing posterior corners. Thorax convex in profile, roundly impressed between meso- and epinotum. Petiole in profile higher than long, elevated in front, with convex anterior, flattened, sloping dorsal and convex posterior surfaces. Femora and tibiae compressed.

Shining. Mandibles coarsely punctate and rugose-striate. Cheeks and clypeus with very coarse longitudinal carinae. Remainder of head and the body coriaceous.

Fine, erect hairs and short, recumbent hairs rather sparsely distributed on head and body; appendages lacking erect hairs.

Black. Mandibles, funiculi, and tarsi reddish brown.

Worker. Length 5.25 mm.

Differing from typical *schmeltzii* only in the color of the legs which are dark brown to black, instead of having the femora bright yellowish brown.

Male. Length 6 mm.

Head longer than broad, cheeks nearly straight. Mandibles with a large apical tooth. Clypeus obtusely carinate at middle. Scapes slender, surpassing occipital corners by three eighths of their length. Scutellum triangular, longer than broad. Petiolar node in profile subcuboidal, longer than broad; dorsal surface flattened and sloping forward, with bluntly connate anterior corners.

Shining, coriaceous.

Erect hairs sparsely distributed.

Color black. Mandibles and appendages brown.

Vanua Levu: Labasa (Type-locality), Wainunu, Suene.

The irregular, very coarse carinae on the cheeks and clypeus distinguish the soldier. *Type*.—M. C. Z. 8,722.

71b. CAMPONOTUS (MYRMEGONIA) SCHMELTZII Mayr, var. LOLOMA,
var. nov. Fig. 33.

Worker. Length 4-6 mm.

A small series of worker minors and media are very similar in structure and color to *schmeltzii* var. *kadi*, but differ in the outline of the epinotum which is impressed in front of the posterior angle and shows a tendency toward developing into a tooth as in *laminatus* and *lauensis*. This contour, even in the small series before me is highly variable as shown in Fig. 33.

Var. *loloma* is interesting in being one of the very few truly Fijian ants that I found in the Lau Archipelago. My specimens were taken in the woods near the center of the island.

Lau: Kabara.

71c. CAMPONOTUS (MYRMEGONIA) SCHMELTZII Mayr, subsp.
TROTTERI, subsp. nov. Fig. 34.

Worker. Length 3.90 mm.

A unique worker from the mountains near the lake in Taviuni differs from the others in the contour of the epinotum and in pilosity. The epinotum, in addition to sparse, long hairs, has a moderately dense covering of very fine, short, erect hairs. In other respects it is very similar to var. *loloma*.

Taviuni: Mountains near lake.

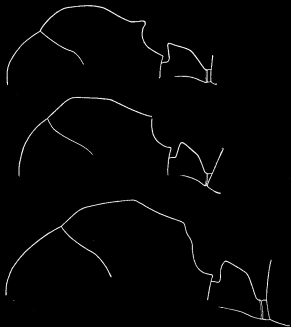


FIG. 33.—*Camponotus (Myrmegonia) schmeltzii* var. *loloma* Mann. Workers. Lateral views showing variation in epinotal contour.



FIG. 34.—*Camponotus (Myrmegonia) schmeltzii* subsp. *trotteri* Mann. Worker. Lateral view of thorax and petiole.

72. CAMPONOTUS (MYRMEGONIA) LAUËNSIS, sp. nov. Fig. 35.

Worker. Length 5 mm.

Head longer than broad, sides nearly straight, sides of occiput roundly carinate, occipital angles narrowly rounded, posterior border concave. Clypeus feebly convex, anterior border broadly rounded. Antennal scapes surpassing occipital corners by nearly half their length. Pronotum convex, much broader than long. Mesoepinotum compressed, behind very strongly, with an acute margin; in profile elevated, irregularly arcuate and projecting behind as elongate triangular tooth. Epinotal base in profile strongly concave, its surface rounded. Petiole elongate, cuboidal, inclined forward; seen from above triangular, with the corners rounded; anterior and lateral borders margined.



FIG. 35.—*Camponotus (Myrmegonia) lauënsis* Mann. Worker. Lateral view of thorax and petiole.

Moderately shining. Mandibles punctate and striate. Head, body, and appendages coriaceous-rugulose.

Erect hairs long and fine, sparse on head, more abundant on gaster. Shorter appressed hairs sparse in head, body, and appendages.

Color black. Legs light reddish brown.

Lau: Kabara, Waquava.

The structure of the head and petiole is almost identical with that of *schmeltzii* but the more compressed and strongly backward-projecting epinotum is entirely different, resembling somewhat that of an extreme form of *laminatus*.

The subgenus *Myrmegonia* is made up of a complex of species, with

such closely connecting forms that one might consider them all a single species or divide them into many. The *schmeltzii* group is distinct in the structure of the head, but the epinotum varies from a strongly rounded contour in *schmeltzii* (typical) and the variety *kadi*, to a projecting, toothed structure more extreme even than in *laminatus*.

Camponotus (Myrmegonia) laminatus in habitus is well defined by its more elongate form, and the dentate epinotum, and the excised upper surface of the node, the latter, however, a variable character, and color, but the variety *levuanus* approaches *cristatus* subsp. though it is a much more slender form.

The Australian species, which have been placed in this subgenus, have the epinotum of the worker compressed, but not to such an extent as in the Fijian forms, but the head of the soldier is not strongly truncate in front, so that it would seem more proper to include them in another subgenus, related to *Myrmosaga* and *Myrmocamelus*, while *Myrmegonia* includes only the Fijian species and is closely related to *Colobopsis*, both in the structure of the head in the soldier and in the exclusive twig-dwelling habit.

Table of Species (Workers) of Myrmegonia.

1. Smaller species. Head concave behind, occipital corners narrowly rounded, sides of occiput between eyes and corners narrow and roundly margined; petiole in profile subcuboidal, elevated in front, with a rather long, sloping dorsal surface. 2
- Large species. Head convex behind, occipital corners and sides behind eyes broadly rounded. Petiole in profile cuneiform, narrow and margined above. . 6
2. Mesoepinotum not toothed behind; the epinotal base broadly rounding into the declivity. 3
- Mesoepinotum impressed behind or with either a tooth or an obtuse angle between base and declivity. 4
3. Femora bright brownish red. *schmeltzii* Mayr
- Femora dark brown to black. *schmeltzii* var. *kadi* Mann
4. Epinotum evenly arched, not impressed in profile, projecting behind as a long pointed tooth. *lauensis* Mann
- Epinotum impressed in profile in front of angle between base and declivity, and with a moderately developed blunt tooth or angle. 5
5. Epinotum feebly arcuate in profile, tooth shorter; pubescence very sparse. *schmeltzii* var. *loloma* Mann
- Epinotum more strongly arcuate in profile, tooth large and broadly triangular; pubescence white, erect, and rather dense on epinotum. *schmeltzii* subsp. *trotteri* Mann

6. Epinotum angulate between base and declivity, but not projecting as a tooth 7
 Epinotum projecting behind as a distinct, acute, triangular tooth 9
 7. Gaster brownish red, with a dense covering of appressed brownish yellow hairs *maafui* Mann
 Gaster black, with much sparser pubescence 8
 8. Femora black *cristatus* Mayr
 Femora red-brown *cristatus* var. *nagasaki* Mann
 9. Thorax rufocastaneous *laminatus* Mayr
 Thorax black 10
 10. Slender, elongate species. Node strongly excised at middle.
 Thorax more shining *laminatus* var. *levuanus* Mann
 Stouter species. Epinotum pointed at middle. Thorax very feebly shining.
cristatus subsp. *sodina* Mann

73. *CAMPONOTUS* (*COLOBOPSIS*?) *VITIENSIS*, sp. nov. Fig. 36.

Worker. Length 7.5-8 mm.

Head longer than broad, scarcely narrowed in front, sides and posterior border nearly straight. Mandibles with four stout triangular teeth. Clypeus feebly convex, transversely depressed before anterior margin which is broadly rounded. Antennae slender, their scapes surpassing occipital border by more than half their length. Pronotum about as long as broad, little convex above. Mesoepinotum depressed, very feebly convex, in profile, broadly and shallowly



FIG. 36.—*Camponotus* (*Colobopsis*) *vitiensis* Mann. Worker. Lateral view of thorax and petiole.

impressed transversely at middle, the base rounding into the broad and nearly flat declivity. Petiolar node in profile longer than high, broadly triangular above with slightly concave anterior and flat posterior surface; from the front broad above, convex at middle, with the sides elevated as short, blunt cones. Gaster long and depressed. Legs long, slender, and strongly compressed.

Subopaque. Gaster and legs a little more shining than the rest.

Mandibles coarsely punctate apically, densely rugulose-striolate basally.

Head and body coriaceous-rugulose, gaster transversely so; head and gaster with very sparse setigerous punctures and finer punctation.

Stiff, black, erect hairs very sparse on head and posterior margins of gastric segments. Microscopic pubescence sparse on head, gaster, and appendages.

Dead-black, with the last tarsal joint and the tip of the terminal joint of the funiculus and the mandibles brownish red.

Viti Levu: Nadarivatu.

Described from a large series of workers found on the ground and on the trunks of kauri trees. The nests are probably situated high in these trees. As they run about, the workers elevate the gaster and carry it held forward over the thorax.

The elongate, flattened thorax, the curious petiole, the depressed gaster, the very long slender and compressed legs and the dead-black color are characteristic of this species, which, if it does belong to the subgenus *Colobopsis* as I believe, is an unusually large form. *Type*.—M. C. Z. 8,723.

74. *CAMPONOTUS (COLOBOPSIS) DENTATUS* Mayr. Fig. 37.

Sitz. Akad. wiss Wien, 1866, 53, p. 492, fig. 5, ♀.

Soldier. Length 4.75–5.25 mm.

Head one fifth longer than broad, about as broad in front as behind, sides feebly convex, posterior corners rounded, border shallowly concave. Mandibles 5-dentate. Clypeus broad, quadrate, shallowly, longitudinally impressed at middle and roundly elevated at sides, anterior border nearly straight; portion above truncation three times as broad as long. Cheeks at sides of clypeus shallowly impressed. Frontal carinae thick, moderately elevated, not extending to opposite anterior border of eyes. Middle of front indistinctly carinate. Antennal scapes stout, slightly surpassing occipital corners; funicular joints, excepting the first and the terminal, less than twice as long as broad. Eyes nearly flat, situated at posterior fourth of sides of head. Thorax and epinotum robust, broad and flattened above. Mesonotum indistinctly carinate at middle. Epinotum armed with a pair of erect, rather bluntly pointed spines, which are a little longer than half their distance apart at base; the surface slightly convex in front, concave between the spines; declivity shorter than the base, and concave in profile. Petiolar node from above one and one half times as long as broad, broadest in front, anterior corners narrowly rounded, sides straight, posterior border strongly excised, with the corners bluntly conical, dorsal surface flat, except posteriorly where it is impressed at middle; in profile higher than long, anterior surface straight and narrowly rounding into the dorsum, which is flat, posterior surface concave. Legs short and stout.

Gaster moderately, the remainder feebly shining. Mandibles strongly punctate and rugose-striate. Clypeus and cheeks coarsely and reticulately rugose. Anterior part of front more finely reticulate, remainder of head finely

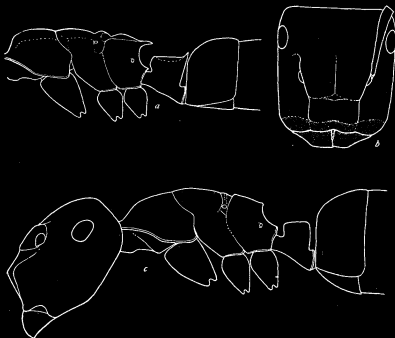


FIG. 37.—*Camponotus* (*Colobopsis*) *dentatus* Mayr. *a.* Worker. *b.* *c.* Soldiers. *a.* Lateral view of thorax and petiole. *b.* Front view of head. *c.* Lateral view of head, thorax, and petiole.

rugulose, with scattered punctures. Pronotum, epinotum, and petiole very densely punctate, the pronotum more shallowly and more shining. Mesonotum rugulose and with fine reticulae. Gaster coriaceous.

Erect hairs very short, black and exceedingly sparse on head and gaster, lacking on other parts. Very fine and short recumbent white hairs on head, gaster, and appendages.

Gaster and head, black; front of head, mandibles, antennae, and legs dark brownish red, thorax, and petiole lighter brownish red.

Worker. Length 3.5–4 mm.

Head very little longer than broad and a little narrowed in front, posterior border rounded. Mandibles with five triangular teeth. Clypeus evenly

convex, broader than long and rounded at the corners, anterior border nearly straight at middle. Antennal scapes stout, surpassing the occipital corners by a distance a little greater than their diameter at tips. Pronotum much broader than long, flattened discally. Mesonotum longitudinally carinate at middle. Base of epinotum strongly impressed in front, gibbous behind, armed with a pair of horizontal strongly curved spines, which are thick apically and blunt at tips. Petiole from above longer than broad, narrowed behind the anterior border, concave at middle, posterior corners elevated as long, acute spines. Legs robust.

Subopaque, gaster shining. Mandibles punctate and finely striate. Head, thorax, epinotum, and petiole reticulately rugose. Petiole and legs very densely punctate.

Erect hairs very short and exceedingly sparse. Fine, appressed hairs discernible only on gaster and appendages.

Head and gaster black, mandibles, thorax, and petiole brownish red, legs brown, with tibiae and tarsi lighter than the femora.

Female. Length 6-6.5 mm.

Head smaller, but otherwise similar to that of soldier. Epinotum rounded in profile. Petiole in profile subcuboidal, narrowly rounded behind; anterior border concave.

Sculpture of head as in soldier. Thorax and gaster coriaceous and with fine scattered punctures.

Head and gaster black, front of head, mandibles, and antennae dark brownish red; thorax, petiole, and legs brown, the legs darkest. Wings (length 6.75) subhyaline, veins pale brown.

Male. Length 4 mm.

Head about as broad as long, longitudinally impressed in front of median ocellus. Frontal carinae rounded, strong, with the surface between them flat in front. Clypeus convex, anterior border rounded. Antennae short, scapes surpassing occipital corners by about one third their length, funicular joints, except the terminal, much less than twice as long as broad. Petiole from above quadrate, nearly twice as long as broad, the corners narrowly rounded; in profile, elongate, nearly flat above and a little elevated behind.

Shining finely, and densely punctate throughout, the head more strongly than the rest.

Erect hairs short almost lacking, and short appressed pubescence very sparse.

Dark brown to black throughout. Wings clear, with pale brown veins.

Ovalau: Levuka. Viti Levu: Tai Levu, Suva, Nadarivatu, Waiyanitu. Vanua Levu: Labasa, Wainunu, Suene. Taviani: Somo Somo, Nagasau. Kadavu: Vanua Ava. Dravuni.

The worker agrees closely with Mayr's description. The figure

published by Mayr is incorrect, as it shows the petiole narrowed above, instead of broad, and the spines are not drawn sufficiently prominent.

The workers vary in the color of the thoracic pleurae, which in some specimens have the lower portions dark brown.

C. dentatus is not confined to the forests, but lives also among scrubby vegetation near the coast or in cultivated districts.

75. CAMPONOTUS (COLOBOPSIS) MAYRIELLA, nom. nov.

Colobopsis carinata Mayr, Verh. Zool. bot. gesellsch. Wien, 1870, 20, p. 934.
(nec *Formica carinata* Brullé, 1846).

Soldier. Length 6.5-7.5 mm.

Head quadrate, nearly a third longer than broad, sides, except at cheeks, straight, posterior border shallowly concave. Mandibles with 6-7 stout teeth. Clypeus a little narrowed in front, anterior corners rounded, border very indistinctly concave at middle, middle with a sharp carina, surface flat in front. Cheeks shallowly impressed, the impressed portion bordered by an interrupted carina. Frontal carinae little divergent, extending to opposite middle of eyes. Frontal area broadly triangular. Front anteriorly with a short, rather sharp carina. Antennal scapes barely surpassing occipital corners; funicular joints all more than twice as long as broad, terminal joint slender and as long as the two preceding joints together. Thorax in profile feebly convex, sutures distinct. Epinotal base as long as the declivity and broadly rounding into it. Node more than twice as high as long, convex in front, flat behind, upper border narrowly concave at middle and roundly margined. Femora moderately impressed.

Shining. Mandibles coarsely punctate and rugose-striolate. Cheeks and clypeus with short rugae. Head and body finely coriaceous.

Erect hairs very sparse, on head and gaster and tips of femora. Sparse fine appressed pubescence on head, body, and appendages.

Fuscipiceous. Front of head, mandibles, and antennae rufous. Legs fulvous, with the femora infuscated.

Worker. Length 5.5 mm.

Head elongate, rounded behind eyes, sides in front of eyes straight and subparallel. Mandibles 4-dentate. Clypeus convex, feebly carinate at middle, anterior border rounded. Antennal scapes surpassing occipital border by half their length; basal funicular joints nearly four times as long as broad, decreasing in length toward the apex, terminal joint shorter than the two preceding joints together. Thorax long and low, and weakly impressed at sutures. Base of epinotum nearly straight in profile, longer than the declivity

and separated from it by a rounded angle. Node higher, cuneiform, convex in front, flat behind, its upper border margined and subtruncate at middle.

Shining. Mandibles with sparse, coarse punctures and fine striae. Head and body finely coriaceous; front of head with sparse, coarse punctures.

Erect hairs long and rather stiff on head and gaster, and fine appressed pubescence regularly distributed on head, gaster, and appendages.

Fuscescens, front of head, mandibles, and appendages fulvous; femora fuscous.

Female. Length 9.5 mm.

Very similar to the soldier, with the usual sexual difference. The petiole is thicker, as broad above as at base and its dorsal surface broad and flat. Wings (length 8 mm.) subhyaline, with brown veins.

Male. Length 5.5 mm.

Head longer than broad, clypeus obtusely carinate at middle, anterior border rounded. Antennal scapes surpassing occipital borders by about one third their length. Node low and rounded, broad above and shallowly impressed at posterior border.

Shining. Coriaceous. Mesonotum and scutellum with few very coarse shallow punctures.

Erect hairs very fine and sparse.

Fuscescens. Funiculi and legs fulvous, femora darker than the rest.

Ovalau (Mayr). Viti Levu: Waiyanitu. Vanua Levu: Labasa, Suene, Lasema, Wainunu.

I did not find this species on Ovalau, the type-locality, but it was not uncommon in the other localities cited, nesting, as usual in the subgenus, in hollow twigs. *Type*.—M. C. Z. 8,724.

76. CAMPONOTUS (COLOBOPSIS) OCEANICUS Mayr.

Verh. Zool. bot. gesellsch. Wien, 1870, 20, p. 943, ♀.

Female. Length 10 mm.

Shining, rufo-castaneous. Head castaneous, front, vertex and abdomen piceous. Sparsely pilose; scarcely pubescent. Mandibles finely striolate; sparsely punctate. Head finely coriaceous, not strongly obliquely truncate in front. Clypeus vertical, finely striolate. Front almost smooth, with a few very fine punctures. Clypeus quadrangular, scarcely longer than broad flat, without a median carina. Cheeks convex. Thorax unarmed, micro-

scopically coriaceous. Petiole with a minute, erect, thickened scale, thicker than high. Gaster finely rugulose.

Wings. Length 9 mm., subhyaline. Stigma and costa ochraceous.

Ovalau." Mayr.

I did not find this species, which apparently is distinct in having the clypeus broader than in the related species and the petiolar node very low.

77. *CAMPONOTUS (COLOBOPSIS) MAUDELLA*, sp. nov. Fig. 38.

Soldier. Length 7.5–8 mm.

Head about one third longer than broad and slightly narrowed in front, sides nearly straight, posterior border shallowly concave, truncated portion rounding into front of head. Mandibles stoutly 7-dentate. Clypeus carinate at middle, on the truncated portion longer than broad, its sides concave,



FIG. 38.—*Camponotus (Colobopsis) maudella* Mann. Soldier. Side and front views of head.

anterior corners broadly rounded, border concave. Cheeks narrowly impressed. Antennal scapes barely surpassing occipital angles; funicular joints slender, terminal joint shorter than the two preceding joints together. Thorax elongate, little convex above, with distinct sutures. Base of epinotum rounding into declivity. Petiole in profile three times as high as long, convex in front, flat behind, with the dorsum narrowed and rounded, from the front weakly emarginate above at middle. Legs rather stout, femora compressed.

Shining. Mandibles coarsely punctate and rugosely striate. Cheeks and clypeus longitudinally striate. Anterior portion of front rugulose. Remainder of head and the body finely coriaceous.

Sparse, erect hairs present on head and gaster and sparse pubescence on head, thorax, abdomen, and appendages.

Head, mandibles, and scapes brownish red; thorax and legs, yellow-brown, tarsi reddish; gaster black with the posterior borders of segments banded with brown and the base of the first segment pale.

Worker. Length 6 mm.

Head elongate, evenly rounded back of eyes, sides in front of eyes nearly straight. Clypeus very obtusely carinate at middle, rounded at anterior border. Antennal scapes surpassing occipital borders by about half their length, funicular joints long, and slender. Thorax elongate, slender, the sutures feebly impressed. Epinotal base strongly compressed, separated from declivity by a rounded angle. Node three times as high as long, convex in front, flat behind, with the top narrow and margined.

Shining. Mandibles finely rugose-striolate. Head and body very finely coriaceous.

Long erect hairs rather sparse on head and gaster and very fine appressed pubescence on head, body, and appendages.

Brownish yellow; gaster black with brown margins to the segments.

Female. Length 9 mm.

Similar to soldier. Petiole thick, quadrate, higher than broad shallowly impressed anteroposteriorly.

Mesonotum with sparse, coarse, and shallow punctures and finer, though distinct, punctures. The sculpture otherwise as in soldier.

Color as in soldier, except that the brown bands across the gaster are much broader. Wings (length 9 mm.) faintly infuscated along apical border; veins pale brown.

Male. Length 6 mm.

Head longer than broad. Clypeus rounded in front. Thorax rather slender. Petiole in profile slightly higher than long, broadly rounded above.

Shining and finely coriaceous. Mesonotum with a few coarse, shallow punctures.

Erect hairs and appressed pubescence sparse.

Head black, the remainder dark brown to black with the mandibles, funiculi, and legs brown.

Viti Levu: Waiyanitu (Type-locality), Nadarivatu. Taviuni: Nagasau.

An abundant species, especially near Waiyanitu. It is closely related to *mayriella*, differing in the more elongate, striated clypeus in the soldier and in color.

This species can not be identical with *oceanica* Mayr, which was described from a female taken at Ovalau, because the clypeus is much longer than broad and the petiole distinctly higher than thick. *Type*.—M. C. Z. 8,725.

77a. CAMPONOTUS (COLOBOPSIS) MAUDELLA Mann, var. SEEMANNI,
var. nov.

Soldier, worker, and female differing from these phases of typical *maudella* in the color of the gaster, which is brownish yellow, similar to the thorax, with each segment banded apically with fuscous, which extends forward as a median blotch.

Viti Levu: Nadarivatu.

This color-pattern is constant in a series of soldiers and females. Some of the workers have the bands indistinct, and the gaster almost entirely yellow. *Type*.—M. C. Z. 8,726.

78. CAMPONOTUS (COLOBOPSIS) JANUS, sp. nov.

Soldier. Length 7.5 mm.

Head elongate, about one and two thirds times as long as broad, sides nearly straight, posterior border very shallowly concave. Mandibles with seven very stout teeth. Clypeus elongate, strongly carinate at middle, narrowed in front sides on truncated portion concave, anterior border very faintly concave. Cheeks rather strongly impressed in front. Scapes slightly surpassing occipital corners; the apical funicular joints barely one and one half times as long as broad, terminal joint shorter than the two preceding joints together. Thorax and petiole similar to *maudella* but the notch on dorsum of node more pronounced.

Shining. Mandibles coarsely punctate and rugose-striate. Front of cheeks and the clypeus longitudinally striate, the striae becoming very feeble on anterior portion of clypeus. Anterior portion of front densely longitudinally striolate. Remainder finely coriaceous.

Head and gaster with very sparse, erect hairs. Head, body, and appendages with minute sparse and regular pubescence.

Fulvous, head reddish, gaster infuscated.

Worker. Length, 4.5–5 mm.

Head elongate, suboval, slightly broadest in front. Clypeus convex, subcarinate at middle, rounded anteriorly. Antennal scapes surpassing occipital

corners by distinctly less than half of their length. Thorax long and slender little convex in profile. Basal portion of epinotum strongly compressed, separated from declivity by an obtuse angle; declivity flattened, slightly concave in profile. Petiole elevated, rather thin, convex in front, flat behind, its dorsal border margined and at middle shallowly concave.

Shining. Mandibles finely punctate. Head and body coriaceous.

Pilosity as in soldier.

Fulvous throughout, except the gaster which is somewhat infuscated.

Kadavu: Buke Levu.

Very close to *maudella*, from which the soldier can be distinguished by the longer and narrower head. The antennal scapes of the worker minor are shorter than those of *maudella* and the color of the two species is different.

Key of the Fijian Species (Soldiers) of Colobopsis.

1. Epinotum and petiole bidentate. Dark red species with black head and gaster. Length 4.75-5.25 mm. *dentatus* Mayr
- Epinotum and petiole not bidentate. 2
2. Head one and two thirds times as long as broad. Head rufous, body testaceous with the gaster somewhat infuscated. *janus* Mann
- Head shorter and broader. 3
3. Clypeus without median carina. Node subquadrate. Fuscopiceous, head in front rufous. Length 5.6 mm. *rufifrons* F. Smith
- Clypeus carinate at middle. Node elevated, convex in front, flat behind and narrowed above. 4
4. Clypeus without strong carinae other than the median one; cheeks with short rugae. Fuscopiceous, middle and posterior coxae and the tibiae yellow; front of head, mandibles, and tarsi reddish brown. *mayriella* Mann
- Clypeus and cheeks strongly striated. Head rufous, thorax rufocastaneous. 5
5. Gaster black, with base of first segment and an apical band on all segments fulvous. *maudella* Mann
- Gaster yellowish, banded apically with fuscous which extends forward as a medial blotch. *maudella* var. *seemanni* Mann